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THE
DUBLIN JOURNAL
OF
MEDICAL SCIENCE.

EDITED BY

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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Notes on Cases of a Severe Type of Influenza.*[a] By JOHN J. BURGESS, F.R.C.S.I., L.R.C.P.I.

FOR several years Europe has been overrun by a disease which has gone by the above name—La Grippe, Dengue Fever, Russian Catarrh, and others—occurring in epidemics of great severity in the latter part of winter, during the spring, and continued in the early summer, from which, according to many observers, there appears to be no immunity in the individual attacked from succeeding onsets, which spreads equally everywhere amongst the rich as among the scantily-nourished poor, in dwellings where modern hygienic science has minimised the risk of infectious disease as amid the squalid lanes and alleys of large cities.

Though our city, if we take the published accounts, has apparently not suffered from so severe types of the malady as London and the Continental centres—viz., St. Petersburg, Paris, Vienna, or Berlin, yet during the past four years we have had ample opportunity to study La Grippe in its various phases. I do not intend to give a description of the different types, which has been previously ably done in a valuable paper by Dr. John W. Moore, but I wish to bring before you a few examples of a severe and peculiar form of lung disease, which, occurring during the prevalence of the epidemic, must rationally seem to belong to the prevailing disease, as well as to solicit opinions on the following practical points:—

---

[a] Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, May 11, 1894.

1. Are the severe types (to be described) merely exaggerations of the common febrile form in persons who have adopted no precautionary measures when attacked?
2. Are they special forms which attack internal organs primarily, simulating the malignant types of fevers?
3. Does the treatment by medicines, beyond the primary relief of the pain in the mild form, do any real good?
4. Does one attack confer an immunity?

Case I.—The first case is one of adynamic pneumonia, with questionable myocarditis. A lady, Mrs. P., aged fifty-six, slight but usually healthy, suffered from a succession of chills at the end of last November, with severe frontal headache and pain over the trunk and limbs. At the time she was complaining there were some children in the house in which she was staying sick with measles. Against my advice she would not remain in her room but insisted on looking after them, which necessitated her changing from room to room through the cold draughts of the house. She had slight laryngeal cough but no chest affection.

About a week after first feeling unwell she had a severe rigor, followed by a rise of temperature to 103°, with extreme pain in the right side shooting through to the scapula behind; her face was pallid and rather dusky; the respirations and pulse were quick; there was great restlessness, with almost constant vomiting. On the right side the vesicular murmur was weak and rather jerky anteriorly; behind there was a loud friction murmur which obscured the pulmonary signs. The heart sounds were sharp and the impulse weak. Next day the face was dusky, the capillaries appearing as purple spots. The temperature was subnormal—97°. The pulse and respirations were respectively 120, 40. There was dulness corresponding to the right pulmonary base with crepitus and tubular breathing. The vomiting was not quite so severe, and the pain had disappeared under treatment. The sputa presented nothing remarkable, being scanty and bronchial. For the next three days, despite everything, she rapidly sank. The face was cyanotic. The respirations and pulse remained accelerated. The temperature was 96°–97°. There was occasional delirium. The dulness extended over the entire posterior aspect of the lung without primary crepitus, with most intense tubular breathing. There was coarse crepitus in front corresponding to the sixth intercostal space and normal resonance.

Dr. Walter Smith saw her in consultation, but she was then moribund and sank into coma, and died on the evening of the fourth day of the lung seizure.

The treatment in the early stages consisted of salicylate of sodium and antipyrin, with morphin and atropin hypodermically to relieve the pain. On the occurrence of the cyanosis, quinine and digitalis in effervescence was substituted, with dry cupping locally; at the same time brandy and champagne were given freely. The peculiar symptoms in this case were the subnormal temperature, with rapidly-spreading consolidation of the lung, the temperature, except on the first day, never rising above 97°, without the corresponding fall of the pulse and respirations noticed by several in this form of pneumonia. 2. Again the early cyanosis, before there was much implication of the lung. 3. The nervous symptoms—restlessness, sleeplessness, vomiting, and occasional delirium, without headache.

Case II.—The second case is one of very acute bronchitis with bronchopneumonia. P. K., drayman, intemperate, florid, and of powerful physique, was first seen on the 14th Jan.; he had been suffering from a cold for some days previous, but paid no attention to it until he felt no longer capable of working. He was suffering from acute bronchitis of the large bronchi, which extended on the following days to, first, the small tubes, then to the alveoli of, primarily, the right base, and on the succeeding day implicating the base of the left lung. His temperature was 104°; pulse, 132; sputa bronchial. Almost simultaneously with the latter extension he complained, as a fresh symptom, of a lancinating pain on inspiration from the crest of the right ilium up to the corresponding shoulder. This gave him great trouble, was excruciating when he had to cough, and gave great apprehension on his part that, owing to the suppression of forcible expulsory efforts, he would be suffocated with the abundant mucus he felt unable to expectorate. There was at the time a friction murmur audible under the right nipple, with dulness and diminished breath-sounds at the posterior aspect of the lung. After a short time the pain disappeared, due, I believe, to morphin and atropin administered hypodermically, and the temperature fell to 100°, the pulse still remaining quick—120. His condition then was: coarse crepitus and increased vocal resonance over the left posterior pulmonary region, with extreme dulness, absence of vocal resonance and respiratory signs over the entire right side behind and laterally. The dulness extended up to the spine of the scapula and forward to a line dropped vertically from the front of the shoulder through the axilla. This dulness did not alter by position or extend to the opposite side of the sternum. Anteriorly there was normal resonance over both lungs, with loud dry râles. A hypodermic needle was several times inserted over the dull region in different spots without disclosing any evidence of fluid more than a drop or two of blood. This condition persisted for six days, when a change for the better appeared; the temperature became subnormal; the left side crepitus and the râles in front ceased, but the dulness on the right continued and the pulse remained quick. For three days he rapidly improved, when unfavourable symptoms set in again. His temperature rose to 100°.; loud râles were again present over the whole chest, excepting the dull portion, which remained unaltered; sleep was impossible owing to the constant coughing up of large quantities of aerated, gummy-like mucus, while he was bathed in profuse sweats. After five days, during which his condition was practically unaltered, the râles became moist, and the expectoration changed to muco-pus and subsequently pure pus; his temperature again fell to below normal, and never rose higher than 97° afterwards; still there was no relief, and sleep became impossible from attacks like bronchial asthma which occurred every night. During all this time there was neither fœtor nor cyanosis.

The next serious symptoms which appeared were retention of urine followed by diminished secretion, then loud gurgling râles over both lungs, audible now for the first time over the dull area, and finally rather sudden death due to cardiac syncope.

The treatment at first was iodide of potassium, followed, on the presumption of the dulness being due to fluid, by saline cathartics and diuretics, then quinine and digitalis. Free use of brandy, and, locally, cupping and blistering, with cantharides.

This case owes its interest to—1. Its duration—29 days—with the persistence of acute bronchitis throughout. 2. The absence of nervous symptoms, the sweating being due to toxic causes. 3. The occurrence of such extensive dulness without breath or voice phenomena, leading me to believe that it belonged to those rare types of the "pneumonie massive" of Grancher, also described by Skoda, in which sound cannot be transmitted owing to infarction of the larger bronchi with mucus. (My friend Dr. Tweedy gave me the particulars of a somewhat similar case which came under his observation at Steevens' Hospital). 4. The supervention of renal complications, without uræmic symptoms. 5. The low temperature, as in the preceding case; and 6. The absence of dyspnœa or cyanosis until just before death, with such extensive disease in both lungs.

Case III.—F. K., aged forty-one, shopkeeper, tall, rather stooped, delicate-looking, came to me in March, 1893, complaining that a fortnight before "he had been treated for an attack of influenza and didn't feel himself getting better." His appearance was that of a man who had been suffering from hectic in the course of some prolonged wasting disease: his face was without colour and of a leaden tint; his respirations were rapid and shallow; his temperature was 103°; pulse, 128, weak; tongue slightly furred in centre. He had been losing flesh rapidly, had a troublesome cough with expectoration and night sweats. The peculiar symptom about his case was the cough; it was violently paroxysmal, like whooping-cough; on its occurrence he would jump up from where he was sitting, double up his body, and beat the air with his hands as if he were suffocating. At the end of this spasm he would hawk up with difficulty a small quantity of dark mucus, from which the fœtor was simply intolerable, making him vomit. This peculiar odour was confined to the expectoration after fits of coughing. During the interval his breath had no bad smell. I made a careful examination of his nasal fossæ with the rhinoscope, but found no ozæna or other diseased condition, and expiration through the nose was odourless. His chest presented nothing out of the normal, except that under the right clavicle there was a faint click on deep inspiration.

Under treatment the fœtor disappeared, the sweats ceased, he gained flesh, and although the cough did not entirely go away it lost its paroxysmal character, and there appeared no further symptom of disease in the right lung. By my advice he went to the country, and after three months he again presented himself for examination. The cough had nearly ceased; once or twice there had been fœtor, which did not persist; his pulse, temperature, and respirations were normal, and his weight had increased.

Some time after this he had a sudden attack of hæmoptysis, which repeated itself several times, and, seeking advice elsewhere, he was informed that he was in the last stage of consumption. He then sought and gained admission to the Hospice. There, however, he rapidly improved, and affairs were not found to be so bad as were represented, so that he was discharged.

He came again under my care, and on a careful examination I could find no trace of disease in either lung; his temperature and pulse were as in health; there was some cough, which I believe to be due to a very irritable condition of his pharynx, as he had complete intolerance of contact with any part of it, and could not bear an ordinary tongue depressor within his mouth. At my wish he was twice examined by Dr. Richard Hayes, who agreed with me that there was no trace whatever of disease in either lung, except that his vocal resonance was slightly accentuated over the right clavicle. He is now in as good health as ever. The treatment tried was, first, antiseptic inhalations, which had to be discontinued because they increased the cough. Guaiacol capsules were substituted, which quickly removed the fœtor; then tonics and fresh air.

I shall leave the remarks on this case over until I finish the next.

Case IV.—J. H., twenty-three, rather stout, medium height, pale but healthy. Got a chill in January, followed by intense pain in the back of left lung; temp., 101°; pulse, 120; respiration, 40; not much cough; scanty expectoration. On auscultation a loud friction murmur was heard over the painful area. Dulness, with tubular breathing, succeeded over the entire posterior aspect of the left lung, gradually extending across the axilla to the anterior lower pulmonary region up to the nipple. Above this was a peculiar sign—extreme tympany, like the note produced over a distended stomach, with considerably diminished breath-sounds, which in six hours was succeeded by complete dulness with tubular breathing. There was no displacement of the heart. His respirations and pulse during this period were rapid; there was considerable cough, with aerated red (bloody) sputum in abundance; his temperature was 101°–102°, not tending to run high. He was seen in this stage by Dr. Little in consultation, who pronounced the case as one of La Grippe. This state of affairs continued about a week without any important change, when the tubular breathing gave place to coarse crepitus over the entire lung, but heard only faintly at the inferior portion behind. The lung was apparently clearing up in front, but the breath-sounds became fainter posteriorly until they were inaudible up to about a point half way to the angle of the scapula. When this condition had gone on a few days he felt, during a fit of coughing, something giving way, and suddenly a great gush of pus, unaerated and similar to what is seen in empyemata, came pouring through his mouth and nose, nearly suffocating him. Immediately after this had taken place loud gurgling sounds were heard at the base of the affected lung, which cleared off, leaving amphoric breathing, thereby showing the presence of a large cavity near the chest wall. After a week this cavity again filled with fluid, and again the breath-sounds ceased over the left base; his temperature ran up until suddenly a similar accident happened, and the pus found vent through the mouth; this occurred a third time, the quantity in each being over a pint, not coughed up at once but coming in one great gush and followed by expectoration of smaller quantities, varying from a teaspoonful to an eggcupful, generally for two days; this last was due to the pus getting sucked into other parts of the lung by inspiration, and evidenced by crepitus heard all over the organ under the stethoscope. After the third flow of pus convalescence rapidly progressed; there were signs of cavity corresponding to the situation of the disease for some time, when these finally disappeared, leaving him well again, but rather shaken by the severe battle he had for his life. The treatment in this case was the ordinary one for pneumonia, and requires no mention.

The last two cases are of interest as examples of somewhat exceptional pulmonary complications. Notwithstanding its rarity, I consider the first as one of that form of gangrene of the lung first described by Lasegue as gangrène du poumon curable; and this gangrene is evident from the following symptoms:—

1. The short duration of the cough, with the previous history of immunity from any bronchial trouble.

2. The appearance of the patient, with the peculiar leaden tint of the face.

3. The septicæmic symptoms, high fever, sweating, and emaciation.

4. The constant recurring attacks of hæmoptysis.

5. The peculiar absence of symptoms of pulmonary disease on auscultation, as remarked by Stokes in several cases.

6. And more particularly, and the point to which I attach most importance, the horrible fœtor.

The above exclude bronchiectasis and chronic pneumonia; the absence of abundant discharge negatives fœtid abscess or empyema—the only disease remaining which might be confounded with this case was fœtid bronchitis.

There was no examination of the sputum made to determine the presence or not of elastic fibres, but the absence of any of the signs of chronic bronchitis, especially the healthy state of the opposite lung, were, taken together, factors, in the absence of the more confirmatory test, to my forming the above diagnosis.

Again, the breath was not continuously fœtid, but only during and immediately following a fit of coughing.

That gangrene has been noticed after pneumonia occurred in influenza is evidenced by the six cases, occurring in one week at Guy's Hospital during the epidemic of 1847, reported by Hughes.

The second case is remarkable for two things:—First, the amphoric resonance over the upper part of the chest, corresponding to the sound described by Biermer as the bandbox sound. Secondly, the situation of the abscess. This extreme resonance is of rare occurrence, and created considerable attention. It was first noticed by Graves in 1837; then Stokes gave it the name of pneumothorax of pneumonia, he believing that in these cases the pleura secreted air. Cases of it were afterwards described by Skoda and Hudson. Gee states that it existed when islets of pneumonia were scattered through a lung containing air. Williams called it the tracheal resonance, and stated it was due to consolidation of the left upper lobe, the sound being caused by air in the bronchus, which is longer on this side, being forced by percussion into the trachea. Guttmann gave as explanation of its occurrence that it was due to diminished tension of the air sacs from the necessary hyperæmia, due to other parts of the lung being impervious. This does not explain why the symptom occurs so rarely; when the conditions are favourable to its production large pleural effusions are very common. It was far in excess of the hyper-resonance we find above the level of an empyema; it resembled exactly the note over a distended stomach. Its distance from that organ, and the dull note elicited by the portion of consolidated lung lying over the left leaflet of the diaphragm, dismissed the possibility of transmitted sound.

Again, as to the source of the pus. It resembled the fluid of a pleural abscess in quantity and appearance. The diagnosis lay between abscess of the lower left lobe or encysted pleuritis. My own idea was in favour of the latter from the symptoms:—

1. The lung sounds were gradually obliterated from below upwards.

2. The occurrence of the bursting of the abscess did not correspond with the acute stage of the lung trouble.

3. The second and third repetition of the above, as if a pleural cavity had filled up drop by drop.

Against these were—

There was no pneumothorax.

The amphoric breathing extended over an area of about one square inch, which would be rather smaller than I would expect a cavity of the pleura to be, containing so much pus.

There was no sound elicited by succussion.

The course of the pneumonia corresponded to those cases described by Stokes as acute asthenic pneumonia, causing abscess in the lower portions of the lungs.

There was neither bulging of the intercostal spaces, nor displacement of the spleen.

In Cases I. and III. there was decidedly a manifestation of the febrile form before the chest symptoms set in, and they were probably due to want of proper precaution, but I believe this sequence exceptional. In the majority of the cases of what might be called influenza pneumonia (the asthenic creeping variety) I have scarcely ever found that there was a preceding period of illness; conversely, with the exception of the above two, I have never found pneumonia develop as a sequel to the ordinary form. In the treatment of this febrile type the salicin preparations, as well as phenacetin and antipyrin, certainly relieve the headache. I think the growing superstition against antipyrin is unwarranted; there is a period in influenza where a tendency to faintness comes on, whether the patient has had the drug or not. From my own experience I have never seen the slightest dangerous symptom from much larger doses than are generally given at present.

Do nux vomica and its preparations do any good in the stage of depression which follows so persistently in the decline of the disease? For my part I have not derived the slightest benefit from them; in some cases they even appear to do harm by increasing the prostration. Quinine, caffein, and coca and its preparations were in my cases valueless. Cold sponging appeared to cause an improvement superior to medicine.

Does one attack confer an immunity? Many believe it does (not total), but modifying like vaccina to small-pox. I have formed this opinion from attending a number of men and their families working in two of the large industries of our city, and by keeping a record for the past four years of each case. I have during that period only once seen two severe cases of influenza in the one individual, and have noticed a peculiarity in individuals attacked more than once that there does not appear, in second or later attacks, to be the prolonged depression, both mental and physical, which is so peculiar a factor of the disease present.

In conclusion, I will again refer to what might be a possible objection to these cases being classed under the above heading—namely, that they are cases of pneumonia which might occur at any time, but they are cases of pneumonia of a peculiar nature, creeping from one part of the lung to the other, attended by profound depression and subnormal temperature, not terminating by crisis, subject to sudden exacerbations, and having what might be comprehensively termed a malignant tendency, with the presence at the time of the epidemic spread over the entire city.

ART. II.—*Note on a Case of Insular Sclerosis.*[a] By H. C. TWEEDY, M.D. Dubl.; Fellow and Examiner, Royal College of Physicians of Ireland; Physician to Madam Steevens' Hospital.

THE following case presents some features of interest and points upon which discussion may well arise:—

CASE.—L. B. [exhibited], aged twenty-three, a member of the Royal Irish Constabulary, was admitted to Steevens' Hospital on March 6th, 1894. The following history of his case is taken mainly from the careful notes of Mr. Cochrane, my resident pupil:—

The patient, a young man of robust appearance and florid complexion, had been for the past three years in the Royal Irish Constabulary. His father and mother are alive and healthy. He has had six brothers, one of whom died young from quinsy, the others are still alive, and all in perfect health. In June, 1889, he had an attack of inflammation of the lungs, and in 1891 he had a fall upon the back of his head while in the Depôt at the Phœnix Park; he cut his head slightly, but did not go off duty, and no unpleasant results followed. For three years past he had been in the habit of practising masturbation, and only desisted from this habit about a month previous to his admission to hospital. There was no history of syphilis. He was in excellent health up to December, 1893, when he was stationed at Carrick-on-Suir, Co. Tipperary. The first thing he noticed wrong was that his eyes failed him, and he could not read with comfort. This condition came upon him gradually, but still he was able to read with an effort.

About the middle of January he noticed that his power of walking began to fail. On February 1st he was attending Petty Sessions at Carrick, but on the 2nd he was unable to walk the five miles to the Courthouse, as he was much fatigued by the walk of the previous day, although when in good health he had walked twenty miles without fatigue. He went into hospital at Carrick-on-Suir on February 28th, and remained there until March 5th, when he came to Dublin, and was admitted to Steevens' Hospital the following day.

His body was well nourished, and his limbs muscular. There was no evidence of disease of any kind in heart or lungs. His appetite and digestion were good. The urine was normal in quantity, colour, and specific gravity, and contained neither albumen, sugar, nor other morbid ingredient. He usually sat with his head and body tilted more or less to the right side. His face was expressionless, and he usually kept his eyes, to use a common expression, "screwed up," as if trying to steady his gaze upon something. When sitting or lying down he could move his arms freely into any position required of him; the same was true of his legs; but if asked to reach out his right hand to take hold of any small article he fumbled and made dives at it at first, but then apparently pulled himself together and made a better offer at grasping it each succeeding time. His head and his right hand sometimes showed a slight tremulous motion when he was excited. Ordinary sensation was markedly diminished on the right side of the body. If asked to close his eyes, and a coin or a penknife were placed in the right hand, he could not tell what it was; but if asked to shift it to the opposite hand he at once described what had been given him. In addition to the anæsthesia there was a slight, but only a slight, paresis of the right hand. The cutaneous and deep reflexes were normal, and there was no ankle clonus. He was quite unable to rise from the sitting posture without assistance, but when placed upon his feet the whole body seemed to become rigid, and the movements of the legs in attempting to walk were violent and spasmodic; he threw out his feet before him, and walked on the outside of each foot. When carefully propped up he could stand without assistance. He had no vertigo, nor was the ataxia increased when he shut his eyes.

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[a] Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, April 6, 1894. [For discussion on this Paper, see p. 59.]

Mr. Swanzy kindly examined his eyes for me, but found no gross lesion. There was no optic neuritis, and the pupils responded normally to light. Accommodation was also normal. There was, however, marked paralysis of the internal rectus muscle on the left side, and the left pupil was slightly larger than the right. There was also well-marked nystagmus on movement; this was best seen when he rotated the eyeballs to their utmost extent right or left. In the case of the left eye the nystagmus was not seen when he rotated the eyeball to the left, in consequence of the paralysis of the internal rectus. There was no sense of smell in either nostril, the patient being unable to distinguish rose-water from tr. asafœtidæ. The mucous membrane, however, responded to ordinary stimuli, as he winced at the fumes of ammonia. Hearing was perfect on both sides. Ordinary sensation was diminished on the left side of the tongue, and the sense of taste was almost lost on this side, both anteriorly and posteriorly. Articulation was distinctly affected, the patient slurring his words, or else pronouncing them with an apparent effort; this, however, was less marked when he roused himself, and took pains to speak distinctly. There was not any atrophy of the tongue or lips, nor was there any difficulty in swallowing.

With such a complex array of symptoms it was not an easy matter to come to a rational conclusion as to the nature of the disease. To recapitulate briefly we have—

1. A spastic ataxia of the lower limbs on attempting to walk,

though the legs can be moved in any direction when the patient is lying down or sitting.

2. Partial anæsthesia and paresis on the right side of the body.
3. Nystagmus, irregular pupils, and paralysis of left internal rectus.
4. Complete loss of smell.
5. Defective articulation, and loss of sensation and sense of taste on left side of tongue.
6. Slight tremors of head and right hand.

To contrast with these we have—

1. Normal reflexes.
2. Absence of optic neuritis and defective accommodation.
3. No headache, vertigo, vomiting, girdle pains, or lightning pains.
4. No rhythmic tremors or definite intention tremor.
5. No trophic disturbances.
6. No dementia.

It is quite evident that the case was not one of locomotor ataxy. It is equally evident that it was not a case of paralytic dementia, though it presents many of the physical signs of that disease. The absence of optic neuritis practically disposes of the likely supposition of a cerebral tumour. The absence of vertigo, vomiting, and occipital headache rendered it improbable that the cerebellum was at fault. In fine, I am disposed to think that the age of the patient, the nystagmus, the peculiarity of articulation, the spastic movements of the legs, point more in the direction of insular sclerosis than anything else. This supposition of isolated pathological growths would to a great extent harmonise with the symptoms present, as we know that the cranial nerves are often involved in this disease, and that for a certain distance a nerve may be grey and sclerosed, either in its entire thickness or in part; and here we have undoubted interference with the functions of the third and fifth nerves. This, again, would account for the fact that certain nerves—as the optic, the fourth, sixth, and facial—have escaped, inasmuch as the formation of the islets of sclerosis does not seem to follow any fixed law of distribution.

As regards the ætiology of the disease, this case seems to lend support to the opinion of Gowers, Strümpell, and others, that syphilis is rarely, if ever, found to be a factor in its causation. No evidences of syphilis could be discovered, nor did iodide of potassium, which was freely given at first, seem to have any effect upon the progress of the disease.

Query, had the persistent habit of self-abuse for three years a remote influence in giving rise to the morbid process in the brain?

ART. III.—*Remarks on the Water Supply in Dublin in* 1890 *and* 1894.[a] By WILLIAM ROBERT GRAVES, L.R.C.P.I., L.R.C.S.I; Pathologist to the City of Dublin Hospital.

IN laying before you the result of my experiments I am influenced by three motives—first, I desire to show that the large increase of pressure in the city mains which has occurred since 1890 simply means an increase of subsoil saturation, and therefore that such increase of pressure must be regarded as a grave danger to the public health; second, I wish to make it evident that the City Engineer is mistaken in his reply to the first report on the water supply, of the Sub-Committee of the Dublin Sanitary Association, in charging the citizens with "individually" causing the large waste of water in the city; and third, I hope that a careful consideration of the results of my experiments will lead to a great reduction in such waste.

In watching the Corporation plumber removing the meter from the water-supply pipe of my house, I noticed that he discovered and repaired a small leak between the meter and the house, which he afterwards described to me as "an old leak." This leak was a very small one, and the jet of water from it was very fine. I was surprised, therefore, to find that the reading of the Corporation meter differed very seriously from the meter which I had placed on the supply-pipe inside my house. This led me to experiment with pin-hole leaks, and the results not only explain this difference, but force me to the conclusion that, for a given leak, the waste of water is much larger this year (1894) than it was in 1890, and also that the total leakage of water in the city actually exceeds the amount used by the inhabitants.

From Table I., set out in the Appendix, it will be seen that the lowest pressures of 1894 far exceed the highest pressures of 1890. I give two sets of experiments conducted with holes—one, one-sixteenth of an inch, and the other, one millimeter (·04 of an inch) in diameter. The latter I call a pin-hole leak. The pressures recorded were taken from the same pipe, and the gauge was placed close to the leak. The pressure was reduced by turning on a tap or taps beyond the leak, thus simulating the reduction of pressure which occurs during the daytime while the citizens are using the water. As a matter of fact, it is immaterial how the pressure is controlled, as the leakage is the same whether the control is before or beyond the leak. The velocity of the flow in the pipes in Dublin never becomes so great as to diminish the flow from a small leak. In the first place, I must explain that in order to correctly estimate the leakage from any given hole in 24 hours, it is necessary to find out the varying pressures to which it will be subjected. Now it happens that I have got pressure tracings, which were taken continuously day and night for two weeks during the year 1890. A similar continuous observation for two weeks of the pressure now prevailing has enabled me to contrast the leakage from similar holes in 1890 and in 1894. The results are contained in the tables given in the Appendix. (I have noted the pressures at different parts of the city, both in the daytime and at night; as might be expected, these pressures vary considerably, but each main tells its own story of leakage and use.) From the tables given in the Appendix it will be seen that, omitting fractions, the average daily pressure in 1894 is 91 lbs. per square inch, as against 48 lbs. in 1890. The pin-hole leaked 434 gallons daily in 1894, against 301 gallons in 1890—or one-third more. The $\frac{1}{16}$th of an inch hole (a very small hole) leaked 1,284 gallons daily in 1894, against 800 gallons in 1890—or more than half as much again; while larger holes leak probably double the amount in 1894 that they did in 1890.

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[a] Read before the Dublin Sanitary Association, on Thursday, June 7, 1894.

It is not necessary, in this paper, to enter more fully into details of leakage at the increased pressure. From the experiments made I have all the materials that I need to make my deductions.

Now why has the pressure increased to this extent since the year 1890? In 1890 no one thought of the possibility of our water supply running short. Last year came the great drought, and the oldest inhabitant cannot remember such a vigorous checking of waste by the Inspectors as has been carried on since the month of August, 1893. This great checking of waste, together with the contraction of the use of water on the part of the citizens, has had the effect of alarmingly increasing the pressure and therefore of greatly increasing the waste of water into the ground (*vide* tables given in the Appendix).[a]

Why is the pressure in the city not controlled in 1894? The pressure has probably been allowed to rise in order the better to supply Drumcondra, Clontarf, and Kilmainham, and districts beyond, which take their supplies from the city mains at places remote from the city inlet at Leeson-street Bridge. The waste and use in the city mains so reduces the pressure that by the time the water reaches these districts, and the districts supplied by the Vartry beyond them, it is impossible to give them an adequate supply unless the pressure in the city is kept at a very high point. This arrangement is a manifest injustice to the Dublin citizen, who has probably more water forced through his fittings or into the subsoil by the high pressure than would supply these outlying districts twice over. Moreover, these districts are not supplied by meter. Thus an undue pressure has to be kept up in Dublin in order that these unmetered suburbs may get a sufficient supply which they are at liberty to squander as they please.[b] Drumcondra, Clontarf, and Kilmainham should derive their supply direct from Leeson-street Bridge and should pay for it by meter. This would give the householders in these suburbs a plentiful supply of water at all times, and by making the authorities responsible for the amount of water which was used would soon make them check the underground waste, which forms almost the whole of the waste at present in the suburbs. I know of one suburb in which the waste has been reduced by 50 per cent. within the last year, as proved by the amount passing at night (nearly all of it being underground). If Kilmainham, Drumcondra, and Clontarf were supplied from Leeson-street Bridge, not only would the suburban householders have an abundant supply of water at a good pressure, but the city would then be very well under control, and the pressure need never be allowed to rise above 60 lbs.

It is evident that, the pressure being uncontrolled and the same amount of water passing into the city, every gallon that the Inspectors succeed in preventing the citizens from running through their system of pipes will cause an increase of pressure, and, as may be seen from the tables given in the Appendix, such increase of pressure will cause an increased leakage into the subsoil. Fortunately, however, this is to a certain extent modified by the fact that the high pressure prevailing at night (over 100 lbs. on the square inch) overcomes the equilibrium of many of the ball cocks, and thus sets a large number of cistern taps running—the ball-cocks, which are on a balance, as it were, at 100 lbs., becoming automatic controllers of pressure, which is thus unable to rise above 105 lbs. The unfortunate citizen, however, is "between the devil and the deep sea," for the moment the pressure rises to 90 or 100 lbs. his ball-cocks will probably begin to leak, and while he sleeps, blissfully unconscious of what is going on, the night Inspector may be listening to his street cock, and, hearing the noise, will promptly report him for wasting water. (A ball-cock on one of my cisterns is as good as a pressure gauge. I have had it under observation for more than a month, and it starts to run at 95 lbs., and will run until steadied by the hand at the higher pressure.) Later on, the day Inspector fails to find any water running, and the householder is set down by the City Engineer as one of those who "deliberately, or through carelessness or neglect" leaves his tap running. But his trouble is not at an end here, for this uncalled-for and quite unneeded high pressure injures his lead pipes, which sometimes swell out, tear their holdfasts out of the wall, and finally lengthen, sag down, and in many cases burst.

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[a] The City Engineer states that in 1893 he succeeded in reducing the amount of water flowing over Callow Hill Weir from twenty million to fourteen and a half million gallons daily. This may have been true of 1893, when the water supply practically failed. It would be interesting to know what is the daily amount now passing over the weir.

[b] The average pressures at Clontarf inlet—*i.e.*, at Ballybough Bridge—are, midnight, 94 lbs., mid-day, 50 lbs.; and I have records of the pressures a mile distant from the inlet which are of great interest.

The high pressure thus entails a large outlay on the part of the householder for the repair of his pipes and fittings, for every alteration of the shape of the pipe is liable to cause cracks in its smooth wall, and, in the minute cracks so formed, a "pit" soon occurs.[a] The City Engineer apparently builds his firm belief in the integrity of his water mains on the reports of his "night Inspectors," who have "found no defect underground." Personally, having examined many of these pipes during the carrying out of repairs, I should be inclined, from the corroded appearance of the main at the ferrules (the rings or caps of metal which make the joint between the house service pipe and the main), to say that there were not many of them staunch, and it certainly would be little short of a miracle if they were, when it is understood that the majority of the holes in the mains for these connections have been "jumped." A "jumped hole" is thus made:—A circle is cut with a diamond-pointed tool and a hammer, and when there is need for hurry, after the cut has been made to a certain depth, the circular piece is knocked in or "jumped" by a heavy blow. As a natural consequence the resulting hole is jagged and uneven, and the tap cuts but a poor thread. A dab of white lead makes a kind of joint for a time, but soon gets driven out by the force of the water, and a minute leak, or perhaps one as big as a pin-hole, or even larger, occurs; sometimes even the ferrule itself is driven out of the main. This blowing out of the ferrule was, and probably is, a common occurrence in the old mains, in which not only was the hole "jumped," but the ferrule was simply driven home without any attempt being made to cut a thread in the hole. Such accidents were, in many instances, repaired by driving in a wooden plug. Evidence against the efficiency of "jumped" holes is not lacking. A large proportion of them are not staunch, and they should be for the future forbidden. As there are probably not less than thirty thousand of these joints, a large proportion of which may have been "jumped," it is not hard to understand why the leakage in Dublin may actually exceed the real use. That it does so is proved by the fact that the uncontrolled head of water never produces a pressure exceeding 105 lbs., while if there were no leakage the pressure would be 133 lbs. The difference in level between the pressure gauge fixed in my house and the Stillorgan reservoir would represent 133 lbs. if there was no leakage or use of water. The pressure at night, when no water is being used by the citizens, is not 133 lbs. but 105 lbs., a reduction of 28 lbs., which must be mainly due to leakage. By day, during the hours of maximum use by the citizens, this pressure of 105 lbs. is further reduced to 80 lbs., a reduction of only 25 lbs.; thus the leakage is actually in excess of the real use.

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[a] A "pit" in a lead pipe is a loss of substance in the wall of the pipe, which, once it has started, goes on eating its way through the pipe until it perforates it. Pitting in the hot water pipes is not to be confounded with pitting in the cold pipes; for in the hot water pipes the sudden alternations of heat and cold, with the constant circulation of water in the pipes, combined with probable galvanic action between the copper boiler and the lead, renders the life of the lead pipe a very short one.

In a neighbouring township (where the pressure was kept within moderate limits during the day) the amount of water passing through the pipes at night was found to exceed the amount passing in the day during a similar interval. This proved that the leakage at the higher pressure during the night exceeded the real use plus the leakage at the lower pressure during the day. The following questions naturally occur:—

If the pressure of 1890 sufficed, why was the water not cut off as the pressure rose in 1894?

Why, in fact, is the pressure not controlled so as not to exceed say 60 lbs. either by day or night? save in case of fire.[a] This would be a good working pressure. In the event of fire it is obvious that to give a good pressure the mains must be made staunch, and that the house service pipes must not be allowed, through leakage, to lower the pressure.

The worst fears of the Typhoid Fever Inquiry Committee, and of the Dublin Sanitary Association, as to subsoil saturation, are realised in a very important district within a few minutes' walk of my house, in the very best and most important part of the city. The subsoil saturation is only too evident. Some of the houses in the district have had to fix permanent drains, connecting them with the main sewers, in order to get rid of the constant filling of their cellars by water trickling through from the surrounding soil.

What advantage is gained by so energetically checking waste in private houses if the only result is that of every gallon saved from the service pipes a large proportion is pushed by the uncontrolled high pressure into the subsoil?

Why are Clontarf, Kilmainham, and Drumcondra not served with a metered supply from Leeson-street bridge? Clontarf and Drumcondra could have a common main.

How long will the citizens submit to have their lead pipes destroyed by the abnormally high pressure which is, in many instances, producing the very leakage for which they are held responsible?

It must be remembered that should it be thought expedient to allow a permanent high pressure to prevail in the city, the mains will have to be made staunch at once, and the house service pipes will in future have to be made strong enough to bear the high pressure without yielding.

By all means let the vigorous checking of waste be kept up, but there should be a weekly statement published of the amount of water sent over Callow Hill Weir. Let the householder, however, be protected from an undue pressure during the hours that he requires but little water, especially as it is now proved that such increase of pressure simply means increase of waste.

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[a] It was reported that on the turning on of the pressure for Arnott's fire one of the mains burst, and so the water supply became inadequate.

Table I.

—	1890	1894
Six hours, 9 a.m. to 3 p.m. . .	35 lbs. average	80 lbs. average
Eight hours, 3 p.m. to 11 p.m. . .	50 " "	90 " "
Six hours, 11 p.m. to 5 a.m. . .	60 " "	105 " "
Four hours, 5 a.m. to 9 a.m. . .	50 " "	90 " "
Average daily pressure .	48¾ lbs.	91¼ lbs.

Table II.

Pressure per sq. inch	No. of Gallons per hour run by a pin-hole leak 0·04 inch diameter	No. of Gallons per hour run by a hole 1-16th of an inch in diameter
5 lbs.	4·25	10·36
10 "	6·00	14·50
20 "	8·25	19·90
30 "	10·00	24·45
35 "	10·75	26·60
40 "	11·25	29·25
50 "	12·75	34·00
60 "	14·00	38·75
70 "	15·35	43·50
80 "	16·60	48·25
90 "	17·90	52·90
100 "	19·25	57·65
105 "	20·00	60·00

TABLE III.—*Contrasting leakage from $\frac{1}{16}$th inch hole in* 1890 *and in* 1894.

—	1890			1894		
	Pressure	Gallons per hour	Total	Pressure	Gallons per hour	Total
Six hours, 9 a.m. to 3 p.m.	35 lbs.	26·6	159·6	80 lbs.	48·25	289·5
Eight hours, 3 p.m. to 11 p.m.	50 „	34·0	272·0	90 „	52·9	423·2
Six hours, 11 p.m. to 5 a.m.	60 „	38·75	232·5	105 „	60·0	360·0
Four hours, 5 a.m. to 9 a.m.	50 „	34·0	136·0	90 „	52·9	211·6
24 hours .			800·1			1,284·3

Four hundred and eighty-four gallons daily, or 176,733 gallons annually, more leaked in 1894 than in 1890 from hole $\frac{1}{16}$th inch in diameter.

TABLE IV.—*Contrasting leakage from* 1 *millimeter hole in* 1890 *and in* 1894.

—	1890			1894		
	Pressure	Gallons per hour	Total	Pressure	Gallons per hour	Total
Six hours, 9 a.m. to 3 p.m.	35 lbs.	10·75	64·5	80 lbs.	16·6	99·6
Eight hours, 3 p.m. to 11 p.m.	50 „	12·75	102·0	90 „	17·9	143·2
Six hours, 11 p.m. to 5 a.m.	60 „	14·0	84·0	105 „	20·0	120·0
Four hours, 5 a.m. to 9 a.m.	50 „	12·75	51·0	90 „	17·9	71·6
24 hours .			301·5			434·4

One hundred and thirty-two gallons daily, or 48,508 gallons annually, more leaked in 1894 than in 1890 from hole 1 millimeter in diameter (pin hole).

ART. IV.—*Burmese Ringworm.* By H. S. PURDON, M.D.; Physician, Belfast Hospital for Skin Diseases.

HAVING had recently under treatment a case of what has been called "Burmese Ringworm," or, as it is often named, *eczema marginatum*, it has occurred to me that the disease is sufficiently rare in Ireland to allow of its being recorded:—

My patient, a healthy man, aged about thirty-two, had been formerly in the Horse Artillery, and whilst in India some four years ago the disease first began. He was constantly "bathed in sweat" about the buttocks, owing to being in the saddle. No history of syphilis. Digestive organs and general health excellent. On examination, eruption attacks both buttocks, between the thighs, and lumbar region. The appearance of the "rash" is characteristic—well-defined rings, red in colour, accompanied by patches of erythematous skin and papules, both within the rings as well as outside of same; here and there excoriations, showing the itchy nature of the eruptions, and produced by patient's nails; in fact, at first glance one would call it a case of *tinea circinata*, and not be far wrong, as the disease is generally parasitic in its character; but in this case no fungus can be obtained, probably due to the treatment which has been adopted at various times. For instance, he tells me that before being discharged from the service he was in the Military Hospital, Chatham, and the treatment adopted whilst there rapidly removed the eruption—however, only to return. The relapse may be accounted for, I think, from the deep-seated and penetrating nature of the parasite, which had only been destroyed superficially, the secondary eczema, due to irritation, and now existing for about four years, being kept up, more or less, by an infiltrated condition of skin. Many remedies were tried, but the best results obtained from use of Hebra's ointment for scabies—which contains tar, sulphur, chalk, and black soap—rubbed well in twice daily.

Dr. Duncan Bulkley recommends in eczema marginatum sulphurous acid, to be used pure, and kept in contact with the affected part, as he considers the disease under notice to be a "ringworm" of the genital and other moist regions. Burmese ringworm, or "tinea trichophytina cruris," differs, he thinks, from true eczema, which exhibits the presence of an advancing line at or near the margin of the eruption, which is more red than the adjoining surface, and slightly elevated. In "ringworm" we have, on the other hand, a tendency to clear or heal in the centre, or portion previously occupied, the surface left being of a brownish colour.

The parasitic eruption is generally engrafted, he says, on an eczematous base, or occurs in an eczematous subject, so that the diagnosis is often difficult, especially where the eczematous element predominates. Microscopic examination generally reveals the parasite in the *débris* scraped from the eruption, although often it is *difficult to find.*

Surgeon Edward Nicholson, of the Royal Artillery, describes the disease under notice in the *Journal of Cutaneous Medicine,* Vol. I., 1868. He states that it is known in India as the Burmese ringworm (in Hindustani, *dâd*), and is a variety of *herpes circinatus,* generally confined to the sea-coast of India, and very common on the western coasts, Malabar, and Burmah, especially the latter. It attacks both Europeans and natives, rarely disappearing spontaneously. It seems to be very rare in females, and especially common in men, such as cavalry soldiers; nor does the disease proceed from want of cleanliness, as it occurs in those who bathe frequently. As Surgeon Nicholson remarks, it would seem, therefore, that whatever the predisposing cause, the apposition of the scrotum and thighs in a hot and moist climate is the most frequent exciting cause. The disease if not arrested spreads to the nates, the patient not being able to sit down or ride. Small, irritable ulcers form on the nates, whilst at a later period patches of ringworm break out on the legs and other parts of the body, the irritation from which is most intense, especially at night. Goa powder seems to be the prevalent remedy at Bombay, also a mixture of gall-nuts and sulphur.

FORMATION OF SUGAR IN THE ANIMAL ORGANISM.

This is the subject of an elaborate paper in the first fasciculus of *Lo Sperimentale* for 1894. The author is Prof. D. Baldi, of the University of Cagliari. Starting from the fact that a dog from which the pancreas has been removed becomes glycosuric and so continues until death, he extirpated the pancreas in three cases and subjected the animals to varied observations and experiments—recording the amounts of urine, sugar, and nitrogen discharged each day. One dog survived the operation 25, another 47, the third 6, days. He concludes that the sugar found in animal organisms may have a three-fold origin—the food ingested, transformed glycogen, or synthetic processes taking place in the animal cell similar to those of the vegetable kingdom. He infers that it is hopeless, in serious cases of diabetes mellitus, to exclude sugar by a diet restricted to meat, because albuminous food is itself a source of glucose.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Congenital Affections of the Heart. By GEORGE CARPENTER, M.D. Lond., M.R.C.P.; Senior Physician to Out-Patients, Evelina Hospital for Sick Children, London. London: John Bale and Sons. 1894. Pp. 103.

THIS little book represents an attempt to give, in a concise and accessible form, some information about one of the most obscure subjects in the whole domain of medicine—congenital affections of the heart. Dr. Carpenter has enjoyed unusually extensive opportunities of observing cases of this nature, and his book may fairly be taken as an example of how much (or perhaps, we should have said, how little) can be learned with certainty from the examination of children affected in this way. He describes a number of cases of congenital heart disease, but only in those which ended fatally and in which a *post-mortem* examination was made does he think it well to state with certainty the lesion with which the heart was affected. Still, even though we may never attain to precision in the diagnosis of such cases, it is well to know what are the various forms of congenital disease—a matter about which very little information is to be derived from most works on medicine or on children's diseases; and we believe that Dr. Carpenter's work will be found suggestive and useful.

After a brief account of the development of the heart and of the main arteries and veins, he describes in detail the malformations and congenital lesions which may affect the various parts of the heart. Lesions of the pulmonary artery are those most commonly met with; and affections of the aorta, of the ductus arteriosus, of the septa, &c., are fully described. Then come descriptions of symptoms and physical signs, but unfortunately, as we said above, the lesions are in many cases so manifold that it is not possible, from the physical signs, to make any positive diagnosis. Hence prognosis in these cases cannot be very exact.

The book is, on the whole, well and intelligibly written, though here and there we meet with a sentence the grammar of which might be improved—*e.g.*, "stenosis of the aorta may originate a bruit heard all over the chest, the maximum intensity being at the apex, and not to the signs usually recognised as belonging to aortic disease."

Memorandum on the Opium Question. (*Evidence forwarded to Royal Opium Commission.*) By PATRICK HEHIR, M.D., F.R.S.E., F.R.C.S.E., D.P.H. (Camb.); Surgeon-Captain, Bengal Army; Principal Medical Officer, His Highness the Nizam's Regular Troops; Lecturer on Medicine and Pathology, Hyderabad Medical School. 1894.

THE contents of this paper may be taken as a fair specimen of the expert evidence laid before the gentlemen who have recently, under the name of Royal Opium Commissioners, been enjoying a pleasant little excursion to India at the public expense. Dr. Hehir is certainly an expert. *Experto crede* might be the motto of his memorandum, on the tenth page of which he tells us how he became an opium-eater himself, and how he gave the habit up:—"The manner in which I began the opium-habit was peculiar, yet, in one sense, not different from the way in which it is started by hundreds of people. I was reading for a certain examination in England, and had only a limited time to get up work. About six weeks before the examination came off, I was afflicted with insufferable headaches. One night about 10 o'clock I ran from my room to a chemist's shop, about 80 yards off, and asked the dispenser to give me an anodyne. He gave me a draught, which I found not only removed the headache, but cleared the intellect, increased the keenness of memory, and kept one awake the whole night. Next morning the headache returned, and I went off again to the chemist's with the same object in view, and learned that he had given me 25 minims of laudanum with something to disguise the taste. On ascertaining this fact I asked for and got one drachm of solution of morphine, which, in those days, was equal to half a grain. It had the same effect, but in a more intense degree. I kept taking this dose twice a day till the examination was over. Then, it being no longer necessary to continue the habit, I gave it up, but from the sudden stoppage of the morphine I suffered intensely for eight days."

The result of the author's experience, personal and professional, is very "emphatically stated"—"that opium under no circumstances produces disease of any kind, and that, instead of shortening, it increases the length of life, and that, instead of increasing, it decreases the mortality of its consumers." This is putting the defendants' case pretty strongly!

The following passage illustrates both the extent of Dr. Hehir's experience and his conclusion that, amongst Mahomedans, women are more frequently addicted to opium-eating than men. He takes one day's experience in Hyderabad zenanas, of which he visited *four*:—"In the *first* there were 14 women; 5 were ladies and 9 maid-servants. Four of the former and 6 of the latter ate opium in daily quantities varying from 2 to 10 grains. In the *second* there were 2 ladies and 5 maid-servants. One of the former and 3 of the latter ate opium, in doses varying from 3 to 13 grains. In the *third* there were 3 ladies and 7 maid-servants; of the former, 1, and of the latter 3, ate opium, in quantities from 3 to 9 grains a day. In the *last* there were 7 ladies and 15 servant-women; of the former 5, and of the latter 7, indulged in the drug, in quantities varying from 3 to 12 grains daily."

In Hyderabad, he calculates, about 25 per cent. of women of all creeds and classes eat opium.

We conclude with Dr. Hehir's experience of the effect of the practice on health:—"It is a curious fact that whilst there are so many thousands of opium-eaters in Hyderabad, I have never seen a case in which any symptoms were produced in the opium-eater as the result of his indulging in opium. No one has ever consulted me for the relief of symptoms produced by opium; every local practitioner I have questioned on the point says the same."

Manual of Practical Anatomy. By D. J. CUNNINGHAM, M.D., D.Sc., LL.D., D.C.L. (Oxon), F.R.S.; Professor of Anatomy and Chirurgery, University of Dublin. Vol. II. Thorax, Head, and Neck. 336 illustrations. Edinburgh and London: Young J. Pentland. 1894. Pp. 647.

A SHORT time ago we reviewed in these pages and commended in the warmest terms the first volume of Professor Cunningham's Practical Anatomy, which embraced the descriptions of the abdomen and limbs; the volume under review completes the work, and now for the first time, all the parts of the body which come under the notice of the student in the dissecting room, including the eye, ear, and brain, are fully treated in the Manual of Practical Anatomy.

We have gone carefully through the two volumes from end to end, and, without hesitation, we express the opinion that Prof. Cunningham's is decidedly the best practical anatomy we know, particularly for beginners. Its greatest merits, perhaps, arise from the fact that in writing it, the author has never for a moment lost sight of the chief object—in fact, the essential object—of a practical anatomy—namely, to guide the student, particularly the junior student, in his dissection of the body, to tell him how to display every structure with the greatest ease and the greatest economy of material, and to show him how to recognise and to read aright the anatomy of every part exposed. All this the author has certainly done with the greatest success.

The order of dissection followed is that which is sometimes known as the Edinburgh method, which has been more or less closely followed in this country for several years, and which is, we have little doubt, the best and certainly the most economical system. First comes a short description of the superficial anatomy of each region, in which the attention of the student is directed to the more important surface markings of the part under dissection. This is followed by a careful, full, and intelligible description of the method of showing the structures of the region, then the parts exposed are fully described, at the same time further directions for dissection are constantly given in short paragraphs, as each new structure or point is to be brought out. In this way the thorax, its anterior wall. its contents, and finally its posterior wall and joints, are gone through. Then follow the scalp, the removal and preservation of the brain, the back and the removal of the cord, the neck, face, and pterygoid and submaxillary regions, the deeper parts of the neck, the orbit, prevertebral region, pharynx, nasal fossæ, larynx, and tongue. The book is completed by special descriptions of the brain, the ear, and the eye. The directions for the dissection of the latter are remarkably good, and much more complete than those found in other text-books. We approve, too, of the tearing as compared with the cutting method of dissecting the cerebrum. While on this subject we must give a passing word of praise to the excellent handling of the brain, particularly of the convolutions and fissures—a field in which Professor Cunningham has done some of his best work. The description of these parts is thoroughly up to date; it is particularly clear and complete, much more so than the account in any other text-book we know, and withal it might have been written by any one else, so little are his own special views made prominent by the author.

The illustrations, too—the majority of which are original—claim our attention; the most striking thing about them is, perhaps, their admirable clearness, which is one of the highest points of excellence in an illustration. For instance, we would point out Fig. 237—a dissection of the submaxillary region; nothing could be better. We would also commend Fig. 214, the middle line of the neck—a most useful though simple picture. The diagram of the cervical plexus is good. Fig. 238—a section through the lower jaw, tongue, and neck—is excellent; most useful also is Fig. 254—the isthmus of the fauces seen through a widely-open mouth. The diagrams illustrating the blood-supply of the brain, and the picture of the convolutions, are truthful, clear, and useful. There is also a good series of pictures of transverse sections of the brain. On the other hand, there are some illustrations which might, we think, with advantage be altered, or perhaps omitted. We do not think Fig. 182 or Fig. 217 useful. We think Fig. 211 might be made more striking, and we object to Figs. 227 and 228 on æsthetic grounds. We miss a picture of the facial muscles. Finally, we are much pleased with the large coloured plate of the brain *in situ*, which is a beautiful reproduction of one of the author's well-known models; as also with the numerous tracings of frozen sections, which are most instructive, and are a great advance in a practical handbook.

In the letterpress and descriptions we have noticed a few little misprints or oversights. The reference (to p. 237) is inaccurate on p. 403. The word "vertical" in the middle of p. 377 evidently should be qualified by adding "or horizontal." On p. 342, 6 lines from end, the word superficial has crept in after deep. On p. 325 the origin of the stylo-glossus is not quite complete. The first sentence on p. 509, under the heading Collateral Fissure, is a little too intricate. We are doubtful of the value of the terms used in the last paragraph of p. 501, particularly as regards the last term. Perhaps some of the detail regarding the calcarine fissure might be omitted in a practical book. There is a reference wrong on p. 520, 11 lines from end—282 should be 283. The use of the term "tænia fornicis" at the bottom of page 594 is not judicious in connection with the paragraph at the top of the preceding page. The picture on p. 600 requires rotating. The word "and" on last line of p. 545 might be omitted. A more compact and more definite description of the limbic lobe would be an improvement; from the account given a student will find it difficult to find out exactly what parts compose the lobe; and lastly, we think a little more applied anatomy would be acceptable in this volume.

The above are mere trifling points of little importance, which detract in no way from the great value of the book; but as we noted them in looking through the volume it is but right to call attention to them.

In conclusion, we would add that the Anatomy throughout is thoroughly abreast of the times, and is conveyed in the clearest and most readable language. The book is beautifully printed on excellent paper, and, taken altogether, leaves nothing to be desired. Looking at the completed "Manual," as a whole, we are thoroughly pleased with it; we consider it a great boon to students of anatomy, who, we are sure, will be charmed with its clearness, its simplicity, and its accuracy without excess of detail. It meets with our thorough and unqualified approval—we know no better book of its kind.

Primer Congreso Medico-Farmacéutico Regional celebrado en Valencia del 26 *al* 31 *de Julio de* 1891, *para commemorar el Ano* 50 *de la Fundación del Instituto Médico.* Actas y Detalles publicados bajo la dirección del Dr. Faustino Barberá, Secretario-general de dicho Congreso. Valencia: 1894. Pp. 720.

We are indebted to the courtesy of Dr. Faustino Barberá for this goodly volume—a detailed Report of the proceedings of the Medico-Pharmaceutical Congress held at Valencia in the end of July, 1891. The Secretary explains in a postscript the obstacles and difficulties which delayed publication until this year. In 1889 it was proposed by a few members of the Instituto Medico of Valencia that a Congress should be held in the following year, in celebration of the fiftieth anniversary of the Institute. Influenza and cholera, however, interposed, and it was found necessary to postpone the assembly until July, 1891.

The result must have been highly gratifying to the promoters. The names of 444 members were enrolled. Four General Sessions were held, the first being taken up with the Secretary's Report, addresses by the President of the Organising Committee, and by the President of the Congress, D. Eléas Martinez y Gil, Alcalde of Valencia; with other non-professional business. Seven papers were read and discussed at the other three meetings, abstracts of the discussions being printed in the Report. The Section of "Public Medicine and Specialties" met 5 times, and 33 papers, many of them devoted to ophthalmological subjects, were read and discussed. In the Section of Pharmacy and Auxiliary Sciences there were two sessions and nine papers, in the Surgical Section three meetings with 17 papers.

The Section of Medicine sat four times and 21 papers were read.

We have been able to do little more than glance at the contents of this mighty volume. We have seen enough to convince us of the flourishing state of medicine, in its widest sense, in Spain. It is restful to find 720 pages devoted to the most varied professional subjects, without any reference to appendicitis, or myxœdema, or symphyseotomy, or glandular masses. Even laparotomy "takes a back seat."

Thirty-third Annual Report of the Cincinnati Hospital to the Mayor of Cincinnati for the Fiscal Year ending December 31, 1893. FRANK W. HENDLEY, M.D., Superintendent. Pp. 148.

THE Cincinnati Hospital assumed its present form in January, 1869. It consists of eight distinct buildings, surrounding a court-yard and connected by corridors. Six pavilions, each three stories high, are devoted to patients. There are three wards in each pavilion; three containing 36 beds, the other six 24 each—allowing 1,800 cubic feet to each bed. There are, besides, 24 private wards, in which "strangers or other persons of means, overtaken by illness, and wishing to avail themselves of the best appointments for proper care, can here find refuge without the sacrifice of any of their liberties;" choosing their own medical attendants without restriction to the hospital staff. At a distance of a mile from the city is situate a Branch Hospital for contagious diseases, with 53 acres of land attached, abundantly planted with trees.

The hospital earned 4,586 dollars, of which private patients contributed 4,103; and the net cost of maintenance was 69,248 dollars. The average weekly cost of each patient was 5·67 dols.

In noticing the Report for 1892 we observed with approval that the experiment of distributing "colored" female patients through the general medical, surgical, and obstetrical wards had been tried with success. The practice was continued through 1893. At the male side coloured patients were so numerous that a similar arrangement was not made; indeed, in November it was found necessary to allot two wards to this class of patients, instead of placing medical and surgical cases in one crowded ward.

In June, July, and August 26 cases of "sunstroke" were treated, of which but one was fatal. This patient was suffering from Bright's disease, was moribund on admission, and died in ten minutes. The reporter attributes the low death-rate to the treatment adopted, which is thus described:—"Immediately upon the arrival of the patrol-wagons in the porte cochère the patients were placed upon metal stretchers, stripped of their clothing, their heads packed in ice, a sharp spray of ice water thrown upon their naked bodies, and in some of the worst cases rectal injections of ice water were given until the dangerous degree of fever from which they were suffering was reduced within the limits of safety. When all immediate danger had passed they were sent to their ward. The time occupied in these preliminary relief measures varied from twenty minutes to two hours and a half."

The importance of enteric fever in Cincinnati is shown by the fact that 37 pages of this Report are devoted to elaborate detailed description of 113 cases of the disease. They occurred in every month, but most in September to January. The four fatal cases are given in full detail.

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1. *Royal University of Ireland. The Calendar for the Year* 1894. Dublin: Alex. Thom & Co. 1894. 8vo. Pp. 445.
2. *Royal University of Ireland. Examination Papers*, 1893. A Supplement to the University Calendar for the Year 1894. Dublin: Ponsonby & Weldrick. 1894. 8vo. Pp. 644.

THESE "hardy annuals" have—perhaps in sympathy with the lateness of the season—"blossomed" at rather an advanced period of the academic year. Nevertheless, the volumes are heartily welcome, being as usual full of information for all who are interested in the sacred cause of higher education in this country. For, although not a teaching University, the crucial tests applied in the various examinations cause the Royal University to exercise a far-reaching and conspicuous influence over education in Ireland.

Concerned as we are more immediately with Medicine, we have merely to state that full information as to the general regulations and courses for medical degrees will be found at pages 116 to 154 of the Calendar. Changes in the courses for 1895 are given in addition at page 167. The principal changes relate to the courses of Botany and Zoology, and to the examination in Pathology at the examinations for the qualifying degrees of M.B., B.Ch., and B.A.O. The examination in this subject will in future include, in addition to the questions on the papers, an oral examination, in which fresh naked-eye specimens will form a special feature, as well as a practical examination in the laboratory. It is required also that candidates shall pass in pathology as a separate subject.

Economy of space is illustrated in rather a ludicrous manner at the bottom of the page (167), which contains the foregoing information. With only an ordinary break in the printing we are told that the subject for 1895 for the Chancellor's gold medal is "Peasant Proprietorship"—a topic scarcely *ad rem* to medical examinations.

The Examination Papers are exceptionally well printed. The type is large and very clear, and reflects credit on the University Press, Trinity College, Dublin, where the volume was printed by Messrs. Ponsonby & Weldrick.

Physical Education. By Frederick Treves, F.R.C.S.; Surgeon to, and Lecturer on Anatomy at, the London Hospital. Reprinted from "A Treatise on Hygiene," by various authors. Edited by Stevenson and Murphy. London: J. and A. Churchill. 1894. Pp. 75.

We are much pleased to see that Mr. Treves has reprinted this essay in a separate form; it is a valuable monograph upon an important subject, which ought to be extensively read, not only by medical men but also by the general public. Everybody thinks himself a competent judge concerning Physical Education, and forthwith proceeds to adopt some certain kind of exercise for himself, or, as the case may be, to prohibit his children's engaging in some game or pursuit which they were desirous of applying themselves to; and he does all without the least atom of scientific or rational knowledge whereon to base his opinions. To "Everybody," therefore, we recommend this work, in the belief that it will assist him in arriving at a safe and right conclusion upon an important subject.

The first chapter treats of the effects of exercise on the growth and development of the body and of its various tissues and organs. Fatigue and the effects of excessive or unsuitable exercises are next treated of. Then all the ordinary modes of exercise are discussed at length—walking, running, cycling, rowing, &c. Finally, hints are given on the selection of exercises according to individual needs.

The book has been written in a wise and liberal spirit; Mr. Treves has shown very fairly the advantages and disadvantages of each form of exercise, without allowing his own individual likes and fancies to bias his mind; and with almost all his conclusions we can cordially agree.

We hope that a copy of this work will be placed in the library of every school and young men's institution, as well as in those of girls' schools and colleges. A good deal of space is rightly devoted to the question of exercise for women and girls.

The New Sydenham Society's Lexicon of Medicine and the Allied Sciences. (Based on Mayne's Lexicon). Twenty-first Part (P.–Pin.). London: The New Sydenham Society. 1893.

It is not necessary for us to do more than chronicle the publication of another instalment of this well-known and excellent work. The part before us commences the fifth volume, and carries us from "P." to "Piñoncillo Tree." The editors, Dr. Henry Power and Dr. Leonard Sedgwick, display unabated enthusiasm in their task.

May we be allowed to suggest that the work should be brought to a close in this, the fifth, volume, and that two parts should be issued yearly until the Lexicon is completed. The Prefatory Note to the first volume bears the date July, 1879, and as a matter of fact the work has already been fifteen or sixteen years in passing through the press. It will be necessary to publish an Appendix at the conclusion of the work.

PART III.

SPECIAL REPORTS.

REPORT ON NERVOUS AND MENTAL DISEASE.[*]

By RINGROSE ATKINS, M.A., M.D.; Resident Medical Superintendent, District Asylum, Waterford.

I. INSANITY IN GENERAL.

The Alleged Increase of Insanity.—At the meeting of the British Medical Association, held in Newcastle-on-Tyne in July last, Dr. D. Hack Tuke read in the Section of Psychology an interesting paper on this important subject, which is now attracting such general attention, and upon which such a difference of opinion exists. Stating the case for those who maintain that insanity is actually increasing, Dr. Tuke puts it thus—"That during the twenty years succeeding 1870 the number of insane in England recognised by the Commissioners in Lunacy has risen enormously, not only absolutely, but after allowing for increase of population. As a consequence, during these years a large number of asylums have been opened, including the Metropolitan District Asylums, Banstead, Cane Hill, and Claybury, and in the provinces Whittingham, Wadsley, Menston, and Parkside, and in addition to these the Holloway Sanatorium near London. On the other hand, the number of asylums closed consists mainly of small private institutions, leaving a balance of increased building accommodation for at least 20,000. And all this apart from the enlargement of existing asylums, by which a large number of beds have been provided. That the annual *admissions* of lunatics into asylums during the same period have also greatly risen, and that the increase of patients in asylums can no longer be accounted for on grounds given fairly enough some years ago, such as the accumulation arising from a greatly lower death-rate, the greater recognition of insanity with the public, and even medical men; or, again, the quickened sense of the necessity for making proper provision for this class. It is contended that potent as these causes may once have been, they have now lost their force—in short, that a comparison of statistics of 1890 and 1870 is not affected by considerations which, no doubt, must be regarded when the comparison lies between 1870 and a number of years before, say 1850. That the acknowledged causes of insanity have increased in power and frequency during recent years, and that consequently the number of insane must have increased also, whatever statistics say to the contrary—in fact, that insanity ought to have increased, if it has not."

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[*] The author of this Report, desirous that no contribution to the subject of Nervous and Mental Disease should remain unnoticed, will be glad to receive any publications which treat of it. If sent to the correspondents of the Journal they will be forwarded.

For those who deny the alleged increase of insanity in England and Wales Dr. Tuke puts it thus:—"That to compare the mere number of the insane of the present day with the number existing twenty years ago is altogether fallacious. That so long as the discharges and deaths of patients from asylums are fewer than the admissions there must be more or less accumulation of chronic cases. That the rate of mortality in asylums has not been, as alleged, stationary, but is distinctly lower than it was twenty years ago. Writing in 1889, Mr. Noel Humphreys, than whom there can be no higher authority, observes—'It is beyond question that the rate of mortality in asylums has declined.' That the recognition of insanity has progressively increased during even the last twenty years. That while it is true that some of the causes of insanity have multiplied and intensified in recent years, these are to a certain extent counterbalanced by conditions more favourable to mental health than obtained some years ago. That there has always been a large mass of insane persons and idiots outside the range of registered lunacy, and that there has been, and still is, greater accuracy in registration, the necessary effect of which is to lessen the *reserve* lunacy and to increase the *registered* lunacy, and, therefore, to cause an apparent, but not real, increase of insanity."

The statistics published by the Lunacy Commissioners show this to be the case. Further, the increase in the asylum populations throughout the country is almost entirely drawn from the pauper class, which is less affected by conditions of advancing civilisation than the higher and more cultured classes, and which ought, therefore, if these conditions were operative in the production of insanity, to be less liable to insanity than the latter. Again, the asylum populations in recent years have been largely recruited from the imbecile and weak-minded inhabitants of workhouses, who for various reasons have been admitted to asylums, and registered as fresh cases. Finally, the age distribution of the insane, as shown by the Census, is regarded as favouring the opinion that the apparent increase of insanity is due to "accumulation." Dr. Tuke having thus adduced the main arguments brought forward by the supporters of both sides of the question, proceeds to investigate the matter by a careful examination of the available statistics, and from this investigation gives the following summary of the principal points elicited:—

"There has undoubtedly been since 1870 a large increase in the number of patients in asylums and workhouses, but proportionately more in the former than in the latter. There has not been so great, but still a considerable rise in the *admissions* of patients into asylums during the same periods, after deducting transfers and re-admissions. The advance in the number under detention, although it holds good after allowing for the increase of population, does not prove the increased liability of the community to insanity, seeing the vast accumulation due to a lower death-rate (even since 1870), the chronicity of the disease, and the lamentable tendency to relapse. The advance in admissions, again, does not prove increased liability to insanity, as—(*a*) the value and comfort of asylums are increasingly appreciated; (*b*) there has been a very large number of patients drafted from workhouses to asylums; and (*c*) there has been an ever-increasing encroachment on the mass of unregistered lunacy which the Census shows to exist. The increase in the number of the insane has taken place among the poorer classes of society.

"The increase in the ratio of the insane during the twenty years between 1871 and 1891 has taken place in persons above the age of forty-five, the significance of which lies in the accumulation of chronic cases. On the other hand, there has been a decline during this period in the proportion of cases of mental weakness under twenty-five years to the population at the same term of life—a most remarkable circumstance. That considerable as has been the increase in the number of the insane as returned in the censuses of 1871, 1881, and 1891, the ratio of increase has been a declining one, for although the rise in the ratio to the population was 7·04 per cent. during the decade 1871–82, it was only 3·23 per cent. in that of 1881–91."—(*Jour. Ment. Sci.*)

The alleged Increase of Insanity in Ireland.—The general importance of the subject, and the fact of the same great increase in the asylum population in this country, and this in the face of a diminishing population, naturally demanded that special inquiry should be made as to whether there was really a progressive increase in the liability to insanity in Ireland. The Lunacy Inspectors, at the request of the Executive, entered upon the inquiry, and from the reports furnished them by the asylum superintendents through the country, as well as from their independent investigations, drew up a report which was duly laid before Parliament, and in which the following conclusions are arrived at:

1. That the great increase of the insane under care is mainly due to accumulation, and is so far an apparent and not a real increase.

2. That the yearly increase of admissions is drawn, in a considerable proportion of cases, from the reserve of unregistered insane existing throughout the country, as shown by the reduction in the number of lunatics and idiots at large given in the Census Returns for 1891 as compared with 1881.

3. That the annual increase in the face of a shrinking population of the number of first admissions, including as it does such a large proportion of first attacks of insanity, almost irresistibly points to some increase of occurring insanity in particular districts.

4. That the main factors which contribute to the development of occurring insanity in this country may be classed as—(*a*) heredity; (*b*) consanguineous marriages; (*c*) innutritious dietary; (*d*), the immoderate use of certain nervous stimulants—such as alcohol, ether, tea, and tobacco; (*e*), acute agricultural depression and dislocation.

At the recent annual meeting of the Medico-Psychological Association, held in Dublin, a discussion on this subject was opened by Dr. Drapes, who from a somewhat different method of investigation arrived at almost the same results as those just quoted from the Lunacy Inspectors' Report. To this discussion Dr. Hack Tuke contributed a paper, and from his most recent statistical inquiries he is of opinion that while there is no general or marked increase of "occurring" insanity in this country, there is an appreciable increase in certain districts, and he considers that the results of emigration and distress, accruing from political unrest, are in a measure responsible for this, though the actual causes are no doubt of a very complicated nature, and dependent on many conditions acting together.

Hemp Drugs and Insanity in India.—In the *Journal of Mental Science* for January last, there appears an interesting paper from the pen of Surgeon-Captain Tull-Walsh, Superintendent of Lunatic Asylums, Calcutta, on this subject. From the evidence adduced before the Commission lately occupied in investigating the influence of such drugs in the production of insanity and allied neuroses, as well as from numerous observations made, the following conclusions are stated:—

1. That hemp drugs are very largely used in Bengal, smoked as *gánja* and *chunus*, drank as *chang* and *siddhi*, or eaten as *mâjune*. The smoking of *chunus* and the eating of *májune* are not very common.

2. Among healthy persons *gánja* smoked alone with tobacco, or with a very small addition of *datura* (two or three seeds), produces a condition varying from mild exhilaration to marked intoxication. The violent intoxicating effects are less marked, or are not seen at all, in persons having a regular and wholesome supply of food. Much the same may be said of *chang*, &c.

3. Among persons of weak mind, or with marked neurotic tendency, even a moderate quantity or only a slight excess of hemp drugs may so increase the insanity, evident or latent, as to make such persons violent, morose, or melancholy, according to the neuropathy with which we start. The presence of adulterations, such as *datura*, will increase these effects.

4. Abuse of hemp drugs, especially when adulterated with *datura*, will produce even in healthy persons a very violent intoxication, simulating mania, or may lead to a morose melancholic condition, or to dementia.

These conditions are generally of short duration, and the patient ultimately recovers. So common is absolute recovery that I think when a patient confined in an asylum for the treatment of insanity, said to be due to the abuse of hemp drugs, does not recover within ten months, these drugs were possibly only the *exciting cause*, and that we are dealing with an individual who was either insane previous to his use of intoxicating drugs, or with one in whom latent insanity has been roused into activity by the vitiating effects of excess of *gánja*, *chang*, &c.

II. NEURO-ANATOMY AND PHYSIOLOGY.

A Modified Golgi's Method for the Study of the Human Brain.— Dr. W. Lloyd Andrietzen, who for the past two years has been prosecuting a research into the finer structures of the cerebral cortex, by the most recent methods of research has found that the following modification of the original method, introduced by Golgi in 1885, and which has revolutionised the study of cerebral histology, gives excellent results with adult human brains, as well as with the brains of full-grown animals, Golgi's own method being more applicable to the brains of young and embryonic animals:—

(*a*) Thin slices (2 to 4 mm. in diameter) of brain, with the pia-arachnoid intact, are suspended by a thread or a glass or platinum hooks in a 2 per cent. solution of bichromate of potassium; 95 cubic centimetres of this are taken, to which, after 10 to 15 minutes, 5 c.c. of a 1 per cent. solution of osmic acid is added, the preparations being kept in this in the dark for 24 hours. (*b*) They are then changed into a 2½ per cent. solution of bichromate, to 90 c.c. of which is added 10 c.c. of a 1 per cent. solution of osmic acid, in which the preparations are suspended for 2 days. (*c*) They are finally transferred to a 3 per cent. solution of bichromate (Golgi's), to 80 c.c. of which 20 c.c. of a 1 per cent. solution of osmic acid is added, and in this they are allowed to remain half a day. The total fixation and hardening of 3½ days shows nerve-cells and two types of glia cells (fibre cells and protoplasmic cells) well; 4½ days hardening show more nerve cells, especially cell bodies; 6 days are needed to show axis cylinders, nerve fibres, and collaterals. On an average it is well to have two specimens hardened for 3½ to 4½ days respectively. (*d*) The preparations when hardened are rinsed for a second or two in distilled water, and are then placed in a solution of nitrate of silver (¾ per cent.) in the dark, and kept there for 5 to 15 minutes. (*e*) They are then changed to a dish containing 100 to 120 c.c. of nitrate of silver solution, to which not more than one drop of formic acid has been added, and they are then (*f*) placed in an incubator, in the dark, at a temperature of 25° to 27° C., the silver solution being changed for fresh after 24 hours. (*g*) The silver staining should go on thus for 3½ to 4½ days, though 3 days often suffice. (*h*) The preparations taken from the silver solution are rinsed in methylated spirit, and fixed in wax or spirit for 15 minutes, followed by a soaking in absolute alcohol for a further period of 15 minutes; they are then transferred to thin celloidin for half an hour, and fixed on cork. (*i*) They are then cut into fine sections under spirit. (*k*) The best sections are then picked out, and placed in a large quantity of distilled water till nearly freed from spirit, which requires about five minutes' washing. (*l*) The sections are then placed in a ¾ per cent. solution of nitrate of silver for from half to one hour. (*m*) They are then dehydrated in spirit and xylol piridin, equal parts of each being employed. (*n*) They are next cleared in xylol, this process being twice repeated, and finally after blotting they are mounted in xylol dammar without a covering glass, the process of drying being hastened by placing the slides in the incubator at a temperature of 37° to 40° C. for one day or a little longer. This procedure is necessary, otherwise, even after months, the specimens may begin to spoil. Successful preparations show the nerve-cells and their processes down to their finest ramifications and endings, and the same holds with regard to the glia cells, both protoplasmic and fibre cells, and all these cell elements are sharply differentiated from each other and from the clear ground substance. Axis cylinders and collaterals are seen somewhat abundantly, also nerve fibres, ascending and ending freely by branching fibrils in the cortex. This method is applicable to brains, provided *post mortem* changes are not too advanced, or the tissue disintegrated or softened.—(*Brit. Med. Journ.*)

At the recent meeting of the Medico-Psychological Association, held in Dublin, Dr. Andrietzen exhibited a beautiful series of specimens prepared by the foregoing method, by the aid of which he was enabled to demonstrate hitherto unrevealed structural elements in the brain cortex. The most important point brought out by his researches has reference to the endings of the protoplasmic processes branching from the nerve cells. Hitherto it has been accepted, though never actually demonstrated, that the branches from the different nerve cells anastomosed, thereby forming a continuous and complex network through the cortex, brain cell being thus united to brain cell. The modified Golgi method shows this not to be the case. The minute branches after passing upwards from the nerve cell, and dividing and subdividing many times, ends freely in the clear ground substance through which they run, and under high powers of the microscope these highly differentiated branchlets are seen to be provided along their length on either side with a series of little bud-like projections, the terminal fibrils being especially thus provided, while the terminal fibrils from one cell intercalate but never unite with those from another, the medium of communication between the systems of cells being through the fine ground substance in which they are embedded. These little bud-like projections or terminals, Dr. Andrietzen ventures to suggest, are so many minute points of receptivity by which impulses are carried to the body of the nerve cell. He has observed, he says, that in cases of advanced dementia these bud-like projections are absent, the protoplasmic branchlets being quite smooth. If this observation be confirmed, it will prove to be a most important discovery, and tend to substantiate the idea that these little bodies are part and parcel of the physical substratum of mental action. Dr. Andrietzen further demonstrated in his preparations the two kinds of glia cells which he described in the paper published in the *British Medical Journal*, July 29, 1893. He clearly showed the difference in appearance and in their external relations between the (*a*) protoplasmic fibre cells, and (*b*) the nerve fibre cells. The numerous branches of the former have a mossy dendritic appearance, and their so-called "feet" can be traced to their attachments to the minute arterioles. These are the glia cells to which Bevan Lewis applied the term "scavenger cells," and which are morbidly enlarged in chronic alcoholism and general paralysis of the insane. This term is, however, now being abandoned by histologists, as the views of Bevan Lewis which led him to apply this term do not meet with universal acceptance. The glia fibre cells differ from the protoplasmic in the processes being very much longer, streaming away from the cell body far into the surrounding cortex; these processes are not dendritic or shaggy, but, on the contrary, quite smooth and of uniform calibre throughout. They lie in great numbers nearest the surface of the cortex, and send upwards fibres which with fibres from other cells form a true felt-work. The fibres from below stream down into the substance of the cortex, sometimes reaching down through half its thickness. In addition to these so-called *caudate* glia nerve fibre cells, there are also *stellate* glia nerve fibre cells which are seen, especially in the white matter and septa of the spinal cord, and which are quite distinct and different from the glia protoplasmic cells which are also stellate, and the characters of which have been above described. Dr. Andrietzen strongly supports the views regarding the structure of the cortex recently advanced by Ramon Y. Cajal, and in this he is supported by Dr. Batty Tuke, who showed, by means of the optical lantern, a beautiful series of photomicrographs, illustrating the morphological structure of a convolution according to the teaching of Cajal.

Nissl's Staining Method.—This a method to which considerable importance has been and is attached in Germany. Nissl's original description appeared in 1885, and in this magenta is recommended as the staining agent. In 1890 he described a modification which has superseded the older process. In this country but little seems to be known of the method, of which the following is a brief description. Have ready (1) a 0·5 per cent. aq. sol. of methylene blue (Methylenblau patent B. from C. Buchner und Sohn, Fabrik pharmaceut chem. Producte Munich); (2) a mixture of anilin oil 20, alcohol 96 per cent. 200 parts—this must not be too old; (3) origanum oil; (4) benzine; (5) a balsam made by dissolving colophonium in benzine and of the consistence of ordinary chloroform balsam. Portions of tissue as fresh as possible, in size from 1 to 2 cc.m., are placed for fixation and hardening in alcohol, 96 per cent. to 98 per cent., for 24 hours. Remove, fix on cork by gum (caused to set by placing the whole in methylated spirit), and cut sections by the sliding microtome into spirit. The sections are placed from pure alcohol or distilled water in the methylene blue solution, and this is heated until bubbles form—"until the crackle of bursting bubbles is heard." After cooling transfer the sections to the anilin-alcohol and agitate them until no more clouds of colour are given off. An appreciable differentiation takes place. Transfer a section to a slide, dry it well with filter paper by pressure, apply a few drops of origanum oil (which is quickly allowed to run off), dry again with filter paper. Run some benzine over the section to drive off the remains of the origanum and place a drop of the colophonium solution on the section. The slide is now drawn through the flame of a spirit-lamp and the benzine set alight. When it has all been burnt off adjust the cover-slip. Warm the under surface of the slide, pressing down the cover-glass gently; the colophonium is rendered fluid. Allow to cool. It is claimed for this method that it affords far more information concerning the structure of the nerve cell than is obtainable by the ordinary methods of chrome hardening followed by carmine or anilin-staining; the granulations of the cell body are the structures specially brought out. The nucleus is unstained; in healthy tissues the nucleolus stains deeply. Connective tissue nuclei and those of vessel walls are also well shown. By this method Nissl showed the alterations undergone by the cell granules in the case of the ganglion cells of the facial nucleus of a rabbit in which the corresponding facial nerve had been torn away. The changes commenced on the first day, and progressed daily. They consisted in a gradual breaking up of the granules until the normal appearance of the cell protoplasm was entirely lost. The cell appeared as if dusted over with fine particles of colouring matter.

This *débris* of granules was only faintly stained. *Pari passû* with the above changes the cell body became swollen and rounded, and the nucleus and cell processes disappeared. All the cells of the nucleus were not equally affected at the same time, stages of degeneration being exhibited, so that cells apparently completely broken down were adjacent to others seemingly healthy.

Recently Schaffer (*Neurolog. Centralbl.*, Dec. 15, 1893) has found that Nissl's method affords a means—in addition to other methods such as the Golgi-Cajal—of discriminating between the axis cylinder and the protoplasm processes of the nerve cell; whereas the latter, with this method, show spindle-shaped chromatin bodies stained by the methylene blue; the axis cylinder is quite free from such, being homogeneous. The method of Nissl is undoubtedly of value in pathological research; sections of the brain from cases of general paralysis, chronic mania, and dementia showed similar conditions of degeneration to those described by Nissl in the nerve centres of the rabbit. It would be important to compare a series of sections prepared by this method from the brains of the insane with sections from healthy brains similarly prepared to determine the pathological significance of the degeneration of the cell granules thus shown (Dr. Goodall in the *Journ. Ment. Sci.*).

In the *Alienist and Neurologist* for July, 1893, appears an interesting paper by Dr. S. Baker on "Recent Discoveries in the Nervous System." The discoveries to which the author wishes to call attention were preceded and made possible by two improvements in microscopical methods—the first discovered by Golgi in 1875—that tissues that had been exposed for a long time to chromic solutions would then take a delicate silver stain which would display the finest filament of nervous tissue; the second, discovered by Ehrlich in 1886, that methylene blue injected into the circulation of living animals stains the endings of the nerves very satisfactorily. The author then enters upon the evolutionary development of the nerve centres, with reference to *spongioblasts* and *neuroglia;* it seems that both are developed from the columnar cells of the medullary plate. These zones are distinguished in the myelospongium of the medullary tube—one about the central canal, one formed by the nuclei of the spongioblasts, and one by the peripheral reticulum. The substantia gelatinosa centralis is formed from the first, the neuroglia of the grey matter from the second, and the white matter from the third. As to *neuroblasts* and *nerve cells*—the germ cells—the other class of epithelial elements of the medullary plate also develop quickly. They change their form, are pointed on one side, and soon become pyriform; the pointed end soon grows until it becomes an extended process of the cell, and looks remarkably like a tadpole. The young cell is now called a *neuroblast*, and migrates from its original seat. In its progress it throws out secondary processes and becomes a nerve cell, while the primitive processes extend, are invested with medullary sheaths, and become nerve fibres.

These neuroblasts belong mainly to the anterior roots which are efferent in their impulses. As regards the posterior roots, we find that at the time of the closure of the medullary groove a thickened portion of the epithelial lining remains at the seam, constituting a band known as the neural crest. This becomes segmented, and forms the spinal ganglia. These ganglion cells finally become bipolar, and are called by the author *æsthesioblasts.* One of the processes seeks the periphery, and terminates in fibrils which end in the cuticular tissues, or in an expansion surrounded by connective tissue. The other process grows centrally, and its final destination is one of the most significant of the recent discoveries. The views held as to the posterior roots are detailed at length, and the description of their actual terminations finally given. The elements of the anterior and posterior roots, called by Waldeyer *neurons*, are similar in both, and are developed in a similar manner. Each is composed of a nerve cell with protoplasmic processes, an axis cylinder process passing into a nerve fibre, and its final termination in a branching tuft. The neuron of the anterior root has short protoplasmic processes, and a long axis cylinder process; that of the posterior root has a long protoplasmic process, and a short axis cylinder which divides and sub-divides.

Both appear to originate from a single primitive type. The primitive neuron is a multipolar remarkably differentiated cell, whose processes may receive stimuli from without, or excite other similar cells by contact with them. The so-called *psychic* cells of the cortex cerebri, which are scattered throughout it in the pyramidal layers of Meynert, are fully described, and the white matter of the hemispheres is shown to be composed of projection fibres and of association fibres. The former, which project the impulses of the outer world on the sensorium or the reverse, are divided into cortico-afferent and cortico-efferent fibres; the latter, which correlate cortical areas, are subdivided into arcuate and commissural fibres. A description of the cells of the cerebellum, the olfactory organ, the retina, and the auditory capsule is given, and the paper is well illustrated by finely-executed plates.

APOLLINARIS WATER.

THE *British Medical Journal*, June 2, 1894, in a communication from the Special Commissioner at the Antwerp Exhibition observes:—"The results of the recent investigations in Paris, and the report of the Académie de Médecine have placed Apollinaris water at the head of all the waters examined for purity and freedom from disease germs. The strong effervescence of this water as bottled has given rise to some misapprehension. The facts are that, rising from a deep rocky source, the Apollinaris water is obtained at a great depth. In the process of bringing it to the surface its carbonic acid necessarily and unavoidably escapes, but is recaptured, and it (and no other carbonic acid) is, by means of proper machinery, reunited with the Apollinaris water in the same proportion in which it belonged to the water in the source. The great value of natural carbonic acid, and its superiority over the artificial product, is now well recognised and appreciated, so that the Apollinaris water claims with justice to be the type of what a natural mineral effervescent table water should be; its purity and the abundance of its natural carbonic acid gas combine, with its soft velvety taste, to make it pre-eminent. In mineral constitution Apollinaris stands between Niederselters and Emsen Krähnchen, and it serves medicinally in place of either; its pleasant taste and its richness in natural carbonic acid are agreeable qualities which have largely contributed to its world-wide popularity."

LICENCES TO PRACTISE IN THE UNITED STATES.

WE learn from the *Medical Record* that the Illinois State Board of Health, to which medical education in the United States owes much, has, in its report for 1894, compiled an account of the qualifications for practice legally necessary in different States and territories. In sixteen States an independent State examination, in addition to the possession of a diploma, is required. In a second group of fourteen, "it is obligatory to register diplomas after they have been supervised either by State Examining Boards, State Boards of Health, or officers of the county or court;" and an independent examination may or may not be considered necessary, and may be merely formal when required. In a third group of thirteen, registration of a diploma only is required. In Maine, Massachusetts, New Hampshire, and Rhode Island, there are no legal restrictions on practice, and in New York the standard of requirement was only raised by years of persistent effort.

CLINICAL RECORDS.

Notes on Uncommon Forms of Skin Diseases.[a] By R. GLASGOW PATTESON, B.A., B.Ch., Univ. Dubl.; F.R.C.S.I.; Surgeon in charge of the Skin Department, and Pathologist to St. Vincent's Hospital; Examiner in Pathology, Royal College of Surgeons.

IX.—LICHEN RUBER PLANUS.

THIS is an affection sufficiently rare in this country to merit its inclusion in the present series of papers. And as several cases have come under my notice during the past few years, it is my intention to give brief notes of the more prominent features associated with some of them, and then very shortly to review portion of the literature dealing with the subject. As a preliminary, and to prevent misconception, let me first state that the type of the disease with which alone we are concerned on the present occasion is that described almost simultaneously by Erasmus Wilson in England and by Hebra in Vienna—by the former as *lichen planus*, by the latter as *lichen ruber*. It is by the blending of these two descriptive terms, on which the respective authors laid most stress, that we arrive at the composite name now universally applied to the disease—*lichen ruber planus*.

CASE I.—Mrs. M., a widow, fifty years of age and six years past the climacteric, came to me on account of an eruption which had broken out on her legs six months previously. She had never gone under any treatment or consulted any one, as she thought "it would wear itself out." As, however, it was not getting better, but appeared to be spreading somewhat, she came to seek advice. When I first saw her in November, 1892, she thought that for the previous month her general health had not been so good as usual, but otherwise she had not suffered in any way except from the annoyance caused by the itching which, she said, troubled her day and night without being worse at any particular time.

On examining the right leg it was found to be thickly covered with dusky reddish-brown spots, varying in size from a sixpence to a large pin's head. The smaller ones were irregular in shape, presenting four, five, or even six or more, sides with angular corners corresponding to the lines of the skin-furrows of the part. The papules, which were sharply differentiated from the surrounding healthy skin, presented invariably a flat and glistening surface—in fact, they looked as if they had been varnished over. Only a few showed any trace of a central depression or umbilication, and it could hardly be said that there was any sign of desquamation, except in the case of one or two of the larger (confluent) patches where a few branny scales could be scraped off. The spots and patches, especially around the knee, showed a noteworthy tendency to follow the natural creases of the skin, and thus to assume a markedly linear and interlacing pattern. On the left leg the same features were visible, only in a somewhat less strikingly characteristic degree. While the distribution of the eruption as regards symmetry was perfect, the patches on this side were larger, composed of a number of confluent spots, and in this way the angular outlines of the individual components were obliterated or merged in neighbouring groups. The distribution of the eruption in both limbs was from the dorsum of the foot up to the middle part of the thigh, where it affected mainly the outer aspect of the limb, while below it was confined almost entirely to the anterior and extensor aspect.

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[a] Continued from the number of this Journal for June, 1894. Vol. XCVII., No. 270, p. 540.

Case II.—This was a boy, aged twelve, who was brought by his mother to the out-patient department at St. Vincent's Hospital on account of a rash on his thighs and knees. It had been present for four or five weeks, and the only trouble it caused was the intense itching; "he lay awake at night tearing himself since it appeared." The parts affected were the outer aspects of the thighs, the groins, and just above and around both knees, extending for a short distance down the legs. There was no other part of the body affected. The characters of the individual lesions were identical with those described in the preceding case. The boy's health was otherwise perfect. The local irritation was somewhat relieved by treatment, but after a few visits he was lost sight of, as he did not return to the dispensary.

Case III.—M. M.,[a] a widow, aged forty-eight, came to St. Vincent's Dispensary in April last complaining of a rash which had been present on her legs and arms for the previous five months. She had been sent up from the country as a case of purpura and treated as such without benefit. The legs, especially the right, showed a typical outbreak of lichen ruber planus, which was most striking as regarded the symmetry of its distribution. It extended along the anterior aspect of both legs from just above the upper margin of the patella down, over, and around the patella, to a point some three or four inches below its lower border, embracing the front of the leg on both sides of the tibial crests. On

[a] This patient was shown at the Dublin Biological Club, April 24th, 1894.

the right side it also extended round into the hollow of the ham. The spots were mostly discrete, though here and there confluent, but even in the larger patches the original outlines could be distinctly traced. The isolated spots showed well the characteristic polyhedral shapes, the linear and mosaic-like groupings, and the relation to the natural folds and creases of the skin.[a] The sharply-defined area of red or purple, and of infiltration of the corium; the smooth, glistening, highly-burnished surface; the occasional tendency to umbilication, and to slight flaky desquamation, especially in the confluent patches—completed the picture. The itching was intense, much worse at night, and it was the severity of this symptom that had first led her to seek treatment, as it had rendered her quite unfit for work, and had obliged her to resign a situation as cook. The appearances on the left leg were similar, though perhaps hardly so striking. On the forearms there were symmetrical patches in an early stage of development, and here the tendency to running in lines was well shown. There were also corresponding patches on the outer side of each hip, but not involving the folds either of the buttock or of the groin. She first noticed the patch on the knees about five months ago; it had been persistent and unchanged throughout, and had remained unvaryingly red and dry—as she expressed it, "nothing had ever come out of it." Otherwise she was in the enjoyment of capital health. The intense itching was markedly relieved by the use of a carbolic acid lotion (2½ per cent.), and she was put on free doses of arsenious acid. She still remains under treatment.

These cases present very vividly some of the more salient features of lichen planus as it occurs in these countries. It is not my intention here to discuss the oft-vexed question of the relationship of *lichen ruber planus* to *lichen ruber acuminatus*, or of the identity of the latter with the *pityriasis rubra pilaris* of Devergie—a view that is now held by many English and foreign dermatologists. But it is needful to point out that in the strife that has been waged some of the more important features of the disease in question have been from time to time obscured or lost sight of, or have, on the other hand, been transferred to the symptomatology of some of its congeners, while in return some of the characteristics of these allied affections have been bodily transported to the clinical picture of lichen ruber planus. Hence the extremely varying and, at times, irreconcilable statements that may be found even in many of the most recent manuals of skin diseases.

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[a] The following somewhat fantastic description of the various forms assumed by the spots in this affection is given by Weyl: "In the body the nodules are often arranged in the segment of a circle, in some cases in the shape of a cockade . . . . in some cases in straight or whip-like curved lines . . . . and (especially when occurring about the groin and inguinal region) like a spider's web!"—Von Ziemssen's Handbook of Skin Diseases, American edition, p. 255. Kaposi describes the regular linear arrangement as "korallenschnurartiges" (resembling a coral necklace).

Ætiology.—As regards the causation of the disease little is known. "Observers are agreed that it is much more common in the higher than in the lower ranks of life."[a] Of thirty-five cases observed by Dr. Jamieson only four were hospital patients. "Some of those affected with it," he adds, "have been subjected to much worry; others are neurotic. There is no constant disorder of the digestive organs or functions associated with it." Taylor says:[b]—"In many cases no cause can be discovered; in others worry, anxiety, insufficiency of food, &c., have produced the disease." Much in the same lines writes Morris:[c]—"The disease occurs in persons otherwise perfectly healthy. It is neither contagious nor hereditary. . . . It is, in my experience, not infrequently the result of a violent nervous shock or emotional disturbance." And Crocker[d] thus sums up the case:—"Nervous exhaustion consequent upon worry, anxiety, or overwork, deficient food, especially in a nervous temperament; but derangements of the digestive or generative system are not infrequent. . . . The acute general cases are, I believe, sometimes determined by a chill during perspiration." "Ueber die Ursache des *Lichen ruber* fehlt uns jede Kenntniss;" and with this dictum of Kaposi's[e] we may sum up the previous quotations and dismiss the question of ætiology.

Age.—All writers are agreed that it is a disease of adult and middle life—cases at the extremes are decidedly rare. The majority lie between the ages of ten and forty (Kaposi); of twenty and sixty—the extremes being four and seventy-two years (Crocker). Taylor and Morris agree in putting the incidence of the affection between twenty and fifty—the former remarking that it "rarely attacks childhood," and the latter extending this rarity to the other extreme of life as well.

Sex.—As to the preponderance of either sex opinions differ, and the influence of climate seems a factor requiring consideration under this heading. Thus Crocker[f] writes: "In England it is more frequent in women. In 114 hospital cases, the women were as 7 to 4, and other English cases tend in the same direction. In Vienna just the reverse holds good; Kaposi says two-thirds are males."[g] In distinct opposition to this, Taylor says: "English cases have been more common in men, Vienna cases in women" (p. 827); while Mr. Malcolm Morris also supports the statement as to the greater incidence in males: "It affects men in considerably larger proportion than women."[a] Dr. Pye-Smith remarks: "Hebra's patients were almost all men. In England it has been more often seen in women, but in 27 consecutive cases of the writer's there were 15 men and 12 women."[b] So that the balance appears, on the whole, to be pretty even—in these countries at least. Dr. Taylor's statement seems to be based on a misapprehension. Kaposi's positive "two-thirds" must show about the true proportion in Vienna.

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[a] Jamieson. Diseases of the Skin, 3rd edition, 1891, p. 208.

[b] Practice of Medicine, 2nd edition, p. 827.

[c] Diseases of the Skin. London, 1894, p. 139.

[d] Diseases of the Skin, 2nd edition, 1893, p. 269.

[e] Kaposi in Eulenburg's Real-Encyclopädie der gesammten Heilkunde. Bd. XII., ss. 81–90, 1887.

[f] Loc. cit., p. 270.

[g] "Unter unseren *L. ruber* Kranken zählen wir gut zwei Drittel Männer und nur ein Drittel Weiber. . . . Einstmal haben wir bei einem acht Monate alten Kinde und zweimal bei drei-bis vier-jährigen Kindern das Uebel angetroffen." Kaposi, loc. cit., p. 87.

Symptoms.—These naturally divide themselves into objective and subjective. The former have been sufficiently dealt with in describing the features of the disease—the nature of the eruption, its arrangement in lines and patches, its seats of predilection, and the minute characters of the individual lesions. But the subjective symptoms have only been incidentally referred to, and one of the most pronounced in all the cases I have met with has been *itching*. It would seem that on a point like this much divergence of opinion could hardly exist; that the comparative analysis of a large number of cases would settle the question once and for ever. But it is not so; most varying opinions are expressed with unvarying dogmatism in many of the most recent text-books. "Sometimes," writes Mr. Morris, "the subjective symptoms are very severe; there is intense itching with restlessness, insomnia, and the deepest mental distress or violent excitement. In the later stages, when the lesions extend over a considerable portion of the body, the skin becomes very tender, and great pain is experienced when the parts are pressed."[c] "Observers differ," writes Dr. Pye-Smith, "as to the existence of itching. In the cases on which the present account is founded it has once or twice been absent, sometimes troublesome, but never severe, that is, not comparable to the irritation of eczema, scabies, or prurigo. . . . . All the cases seen by the writer were in persons in average condition, some of them in robust health. No internal organ is affected, nor are there symptoms of general disturbance, at least in ordinary cases."[d] "There is commonly some complaint of itchiness," remarks Dr. Allan Jamieson; "frequently this is severe or even intense, yet in many cases there are no traces of scratching. Itching is often most prominent where there is pressure from the clothes."[e] And again, Brocq writes: "Elles (*i.e.*, les papules) sont le siège d'un prurit d'une intensité très variable, parfois à peine marqué, parfois au contraire tellement intense que les malades sont épuisés, par la douleur et par l'insomnie. Il est bon d'ajouter que la plupart des sujets atteints de lichen planus présentent une irritabilité nerveuse des plus accentués."[a] On the occurrence of this symptom Kaposi is very definite: "Als häufige Begleiterscheinung des *Lichen ruber* ist Jucken zu erwähnen, welches zuweilen mässig, manchmal aber so intensiv ist, dass dadurch der Schlaf durch lange Zeit gestört wird. Erst mit der allseitigen, durch die Behandlung bewirkten Involution des Exanthems hört das Jucken auf."[b] "There is only moderate itching," writes Taylor;[c] while Tilbury Fox calls it "intense pruritus;"[d] and Dr. M'Call Anderson takes the intermediate position and agrees rather with the opinion of Dr. Pye-Smith quoted above. "The patches . . . . are usually the seat of a varying amount of irritation, the itching, however, being rarely such a prominent feature as in many other diseases, such as Eczema."[e] And finally, Crocker, in one of the most recent text-books, states that itching is "always a prominent symptom;" it may be of moderate intensity, and may precede the eruption; occasionally it may be intense, and is very rarely absent altogether."[f] So that it only remains for some writer to make the statement that itching is never, under any circumstances, present to complete the picture of the widely divergent views that are held as to the occurrence and degree of severity of this apparently obvious subjective symptom. It is only necessary to add that in my own personal observation, and in the cases that have come under my notice in the hands of others, "*intense pruritus*" has been invariably one of the most prominent, if not *the most prominent symptom* (as I believe), and the one which, in the majority of instances, has first compelled the patient to seek medical advice.

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[a] Loc. cit., p. 139.

[b] Diseases of the Skin. London, 1893, p. 87.

[c] Loc. cit., p. 138.

[d] Loc. cit., p. 87.

[e] Loc. cit., p. 201.

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Course and Prognosis.—A large preponderance of cases run a chronic course, extending over a period of from three to eight months or longer. In exceptional cases grave constitutional disturbance follows or accompanies the outbreak, but this is seldom witnessed in the form of the disease as it occurs in these countries. The fatal results described by Hebra and Kaposi are most probably to be met with in the allied form of the disease, not in the true lichen planus. The majority of cases undergo a slow and apparently spontaneous evolution—little if at all influenced by the exhibition of internal medication. Arsenic has been vaunted as a specific, and antimony has been recommended in cases where arsenic has failed; but my own experience leads me to the belief that local treatment, adapted to the relief of the more aggravated and distressing symptoms, combined with careful attention to the hygienic and constitutional conditions of the patient, offers, in the present state of our knowledge as to the ætiology of the affection, the best prospect of an answer to the question paramount to all others in the mind of the sufferer—"How is the disease to be cured?"

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[a] Traitement des Maladies de la Peau. Paris, 1892, p. 467.

[b] Loc. cit., p. 87.

[c] Loc. cit., p. 827.

[d] Diseases of the Skin. London, 1873, p. 145.

[e] M'Call Anderson. Diseases of the Skin, p. 246.

[f] Crocker, loc. cit., p. 265.

UTILISING HIGH ANIMAL TEMPERATURE.

A WOMAN, in Ohio, utilised the high temperature of her phthisical husband for eight weeks before his death, by using him as an incubator for hens' eggs. She took a number of eggs and, wrapping each one in cotton batting, laid them alongside the body of her husband in the bed, he being unable to resist or move a limb. Fifty was the number of eggs first used as an experiment, and after three weeks she was rewarded with forty-six lively young chickens. The happy result of the first trial prompted her to try it again, and this time she doubled the quantity, and was again rewarded for her ingenuity with another brood of chickens. Another hundred eggs were placed in the bed, but this time her husband was so near the end that the necessary heat was lacking, and he passed away leaving behind one hundred half-hatched chicks. The scheming wife, not to be outdone in her plans by grim death, placed the eggs in the oven, thinking to finish the work her husband had failed to complete. During the bustle and excitement of the funeral, however, she allowed the fire to get too hot, and the eggs were all cooked. It is to be hoped that there is no incubator awaiting her—in this world, at least.—*Medical Record.*

HOMŒOPATHY IN AMERICA.

Il Policlinico (Rome) of April 1st gives the following statistics of the number (and proportion to the number of physicians) of homœopathic practitioners in some of the principal cities of the American Union. The source of the information is not stated. We repudiate the term "allopatici:"—

	Omeopatici	Allopatici	
Filadelfia	340	su 2,380	14 per cent.
Pittsburg	54	383	14 „
Mineapolis	46	283	14 „
Saint Paul	26	200	13 „
Detroit	59	482	12 „
Chicago	348	2,700	12 „
Cincinnati	53	725	7 „
Columbus	20	359	6 „
Indianopolis	12	320	4 „
Cleveland (Ohio)	139	627	20 „

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—George H. Kidd, M.D., F.R.C.S.I.
General Secretary—W. Thomson, F.R.C.S.I.

SECTION OF SURGERY.

President—Edward Hamilton, President of the Royal College of Surgeons in Ireland.

Sectional Secretary—Kendal Franks, F.R.C.S.I.

Friday, February 23, 1894.

The President in the Chair.

Nephrectomy and Nephrorrhaphy.

Mr. M'Ardle detailed a case of the above. [It will be found at Vol. XCVII., p. 207.]

Mr. Wheeler stated that he had performed nephrectomy in 10 cases, 2 of which ended fatally, while the others recovered. He considered that in most cases the anterior incision was the best, as it was the easiest, and obviated a danger which sometimes is present—namely, the risk of tearing the inferior vena cava. He recollected a case of horse-shoe kidney in which, *post-mortem*, both kidneys were found healthy, while the connecting band contained two calculi. In this case a lumbar incision would have been useless. With regard to the oozing of blood which sometimes occurred after removal of the kidney, he found that *hot* sponges were sometimes effectual in stopping it.

Sir William Stokes narrated the case of a woman with what was probably a large tuberculous abscess in the right kidney, on whom he had operated, making an anterior incision. He found dense adhesions all over the swelling, and these caused a great deal of trouble to break down. If he had adopted the lumbar incision it would have been impossible to remove the organ.

Mr. Tobin pointed out an accident which he had actually seen take place when the lumbar incision was made—namely, opening of the pleural sac and consequent collapse of one lung. He thought that in many cases it was well to make a counter opening for drainage in the loin when the anterior incision was the one by which the operation was performed.

Dr. A. J. Smith compared the treatment of the ureter to that of the Fallopian tube in cases of pyosalpinx. In these cases the mucous membrane was dissected off the interior of the tube for some distance and removed, and then the lips of the remaining coats inverted and the opening "topstitched." He recommended the adoption of a similar method for the ureter. He also said that clip forceps were not used nearly so much at present in abdominal operations as formerly. Vessels were now ligatured at once.

Mr. Kendal Franks briefly narrated three cases on whom he had done this operation. The first was a case of multiple abscesses in a kidney from which he had a year previously removed a soft phosphatic calculus. The patient recovered and is now quite well. The operation was done in 1887. His second case—a girl affected with scrofulous renal disease—died. At the autopsy it was found that the other kidney was extensively diseased, and that there was extensive suppurative pelvic cellulitis. The third case was that of an enormous multiple cystic condition of the kidney. It would have been impossible to remove it except by an anterior incision on account of its size. The visceral peritoneum was stripped off the anterior surface of the kidney, the organ, which weighed two pounds, was enucleated, and then the edges of the posterior layer of the peritoneum accurately sewed together. In this case he made a counter opening in the loin for drainage. Referring to Mr. M'Ardle's first case, he pointed out that many patients who were treated for indigestion, dyspepsia, and such like troubles, accompanied with pain relieved on lying down, really suffered from a movable kidney. In one case on which he operated he found that the kidney, by dragging on the duodenum, obliterated its lumen.

Mr. Thomson pointed out that it was sometimes very difficult to tell whether the second kidney was healthy, even when you could feel it. He had assisted at an operation for renal calculus in which an anterior incision was made. The operator examined the other kidney, but at the *post-mortem* examination (for the patient died) calculous masses were also found in it. He thought it was wise in some cases to make a counter opening in the loin for drainage. He recommended inversion of the edges of the ureter, and closure by stitches. He thought that cases of sarcomatous kidneys in young children were better left alone. The result list of cases operated on was very dismal to read over.

Mr. M'Ardle, in replying, stated that he considered the anterior incision best, except where there was perinephric suppuration. A counter opening in the loin was advisable where there was any soiling of the lumbar tissues, and where free oozing of blood required tampooning. A moderate amount of blood lodging in the site of the tumour, if strict asepsis was carried out, made very little matter. With regard to sarcomata in the kidney, he thought that if they even succeeded in saving four lives out of twenty-six they ought to operate.

The Section then adjourned.

Friday, March 30, 1894.

The **President** in the Chair.

Case of Lacerated Wound of the Upper Third of the Thigh.

Mr. Pratt read a paper on a case of lacerated wound of the upper third of the thigh in which the great sciatic nerve was divided and much torn, necessitating resection of about an inch of the nerve and subsequent nerve-stretching before sutures could be applied. After the cut ends were brought together they were sutured with carbolised silk in a very small needle; the divided muscles were then united in the same manner, and the skin brought together with pins, the whole dressed with iodoform and alembroth gauze. The man had recovered cutaneous sensibility altogether and muscular power to a considerable extent.

Dr. Myles said that he did not consider this case absolutely successful. The injury occurred two years ago, and regeneration, if it were to take place, should have done so by this time. Restoration of cutaneous sensibility alone was a fallacious test owing to the existence of recurrent sensibility through the union of nerve filaments of the divided nerve with filaments of intact nerves. He had treated a man who had all the structures in the front of the wrist, with the exception of the tendon of the flexor longus pollicis, severed, in whom he sutured the ends of the median and ulnar nerves. In a few days the man had partial sensation in the area supplied by the median, and this he attributed to communications between the radial nerve and the palmar cutaneous branches of the median. In the region supplied by the ulnar nerve sensation was never restored, neither was the muscular power ever regained, and the interosseous spaces wasted and remained so. He had been extremely careful to bring the divided ends in accurate apposition and to secure them by numerous fine sutures through the nerve-sheaths. In two other cases in which he had operated—one a boy whose anterior tibial was severed, and another a patient who sustained a compound fracture in the neighbourhood of the elbow—muscular power was never regained.

Dr. Brooks said that in Mr. Pratt's case he thought the restoration of sensibility was through the great sciatic nerve. In the hand there was a considerable area of skin which had a double nerve supply. Adjoining nerves invaded each other's territory. This was not so in the case of the foot. The long saphenous nerve—the only cutaneous nerve in that region not derived from the great sciatic—supplied a small area of skin just beneath the internal malleolus, and he had never been able to trace it along the inner side of the foot to the great toe. He mentioned a case recorded by Surgeon Yenkith in the *British Medical Journal* of a soldier whose ulnar nerve was divided above the wrist. Several months afterwards the ends of the divided nerve were brought together, and sensation, which had been completely lost in the little finger and part of the ring finger, returned.

Mr. Wheeler called attention to a case recorded by Mr. Wheelhouse of recovery of muscular power and sensation after division of the great sciatic and subsequent suture of the ends. He narrated a remarkable case of an officer whose musculo-spiral nerve was cut, and several months afterwards, on cutting down on the nerve, the ends were found widely separated and unable to be brought together. By the advice of the late Mr. Corley he divided the shaft of the humerus and resected a portion of it, and was then able to bring the ends of the nerve together. Recovery was perfect in every respect as regards power and sensation.

Mr. Pratt, in reply, said that cases of primary nerve suture immediately after receipt of the injury were, as a rule, much more successful than suturing the ends together some months later.

Three Cases of Popliteal Aneurysm.

Mr. Lentaigne read a paper detailing the history of three cases of popliteal aneurysm which he had cured by ligature of femoral artery after compression and flexion had been tried without success. One of the patients was a very old man (seventy-seven years), and was the subject of advanced and almost universal atheromatous disease of the larger arteries. Another of the patients was suffering from well-marked aortic regurgitation, and the third was a young man of twenty-four, who was in good health in other respects. Catgut ligatures were used in all the cases, but in the case of the old man the ligature, which was very thick, was previously softened by immersion in carbolic lotion, 5 per cent. In all the cases the course was perfectly aseptic, and the wounds gave absolutely no trouble whatever. In two of the patients there was noticed a small patch of gangrene on the front of the leg just above the ankle before the operation; this was caused by the pressure of the strap employed to keep up treatment by flexion. In all three cases the entire limb was asepticised before operation, and after operation was dressed in a huge antiseptic dressing, under which the gangrenous patches separated without suppuration, leaving a healthy ulcer underneath, which quickly healed under treatment. In all the cases flexion was systematically employed for some time before the operation with a view to setting up free collateral circulation at the knee-joint in the event of its failing to cure the aneurysm itself.

The **President** referred to the comparative rarity now of cases of popliteal aneurysm. He also spoke of the great improvement in the operative treatment due to the introduction of antiseptic surgery.

Mr. Wheeler said he was surprised to hear that Mr. Lentaigne's patients suffered severe pain when digital compression was tried. In several cases he had seen where this treatment was tried they never complained. In a case he had under observation at present he had refrained from operating, as he noticed that the articular arteries were enlarging and establishing a collateral circulation, and this was always looked upon as a sign that the aneurysm would probably cure itself.

Dr. Brooks asked Mr. Lentaigne were the occupations of his patients such as required them frequently to assume the squatting posture, as in gardening, in which position the popliteal artery is sharply bent.

Dr. Myles said that when the leg was fully flexed the artery became tortuous, and accordingly the sharpness of the bend was lessened. He thought that Mr. Lentaigne was very fortunate in the case, in which there was extensive atheroma. He recalled the case of a man whose arteries were in a similar condition, and who sustained an injury to his brachial artery, which resulted in an aneurysm. Compression was tried without avail, but caused some cellulitis; and the artery was finally ligatured. Secondary hæmorrhage followed, requiring ligature higher up. Hæmorrhage again occurred, and the artery was again ligatured, but the patient succumbed to repeated hæmorrhages. He thought that it was doubtful whether compression antecedent to operation was of benefit.

Mr. Swan said he thought that syphilis and flexion were regarded with too much importance as causes of aneurysms. The Indians who squatted all day on their heels, and many of whose tribes were all but universally affected with syphilis, were, according to Dr. Armstrong, exempt from aneurysms.

Mr. Franks narrated the history of a man who had a popliteal aneurysm, and in whom, after having tried compression and flexion, he ligatured the superficial femoral artery at the apex of Scarpa's triangle. Pulsation returned in the aneurysm after some days, and he was forced to do the operation of Antyllus. The vessel was tied above and below, and the aneurysm was excised. The man a week later got dry gangrene of his foot, and he had to amputate below the knee. He was unable to understand why the latter operation caused gangrene while the former did not.

Dr. Doyle advised the use of iodide of potassium internally in cases of atheromatous arteries.

Dr. Thompson said that he thought one of the reasons Mr. Lentaigne's case of aneurysm in a subject affected with extensive atheromatous disease was so successful was owing to his having used a thick soft ligature which did not tear through the coats of the vessel.

Mr. Lentaigne, in reply to Dr. Brooks, said that the occupations followed by his patients did not necessitate much squatting. One was a vandriver, another a law clerk, and the third a labourer in Guinness' brewery.

The Section then adjourned.

SECTION OF MEDICINE.

President—Walter G. Smith, M.D., President of the Royal College of Physicians of Ireland.

Sectional Secretary—A. N. Montgomery, M.R.C.P.I.

Friday, March 2, 1894.

The President in the Chair.

The Sequel of a Case of Myxœdema treated by Thyroid Juice.

Dr. Little gave an account of a case of above. [It will be found in Vol. XCVII., p. 293.]

Dr. A. Paton mentioned the case of an old lady who suffered from enlarged face, hands, and feet, and whom he treated with 10-minim doses of the extract of the thyroid gland three times a day. The swelling diminished very much, as well as a hæmatoma present in the left ear. Her expression is still heavy and drowsy, but there is no return of the swelling in the hands and feet.

Dr. Hawtrey Benson said that last April he had narrated the history of a case of myxœdema cured by the internal administration of thyroid juice. He was happy to state that his patient was in perfect health still. She had taken small doses of the extract continuously since he had seen her. He thought that it was well always to begin the treatment of these cases by the internal administration of the juice, and if, after a fair trial, this method did not prove efficacious, to resort to the hypodermic method. It was not always possible to obtain the juice in a sufficiently aseptic condition for hypodermic injection.

The President remarked that it was interesting that it did not seem to matter much whether the juice were given by the mouth or under the skin. If it owed its activity to some body belonging to the class of nucleo-albumins one would imagine that gastric digestion would have some influence on its action.

Dr. Little, in reply, stated that some evidence existed as to harm being sometimes done by these extracts. A doctor in the Queen's County informed him that he had cured a patient of a large bronchocele by means of the extract, but that his patient had become greatly emaciated. He had himself noticed some rather alarming symptoms in two ladies, patients of his own. One of them, a hysterical girl, became very nervous and hysterical, and necessitated some nurses being engaged to watch her. In the other case the lady, after a few days, developed violent headache and pain in her abdomen, and similar symptoms came on after a fresh trial.

On the Treatment of Bright's Disease.

Dr. Michael F. Cox submitted a report of two cases of acute Bright's disease which he had successfully treated, commenting at the same time on the generally unsatisfactory results obtained in the treatment of Bright's disease. The first case had occurred nearly eighteen years ago. It was that of a gentleman, aged forty-seven years, who, from exposure to wetting and excessive indulgence in alcohol, suddenly developed symptoms of acute Bright's disease, complicated with uræmic convulsions, maniacal excitement, coma, amaurosis, and who, chiefly by free purgation and copious leeching, ultimately recovered perfectly, and still remains well. The other recently occurred, and was attended by oliguria and a great amount of albuminuria and extensive anasarca. Improvement being tardy under ordinary diaphoretic and other such treatment, the patient was put on 15 gr. doses of diuretin three times a day, with the result that the urine which was reduced to one pint a day was doubled every succeeding day until it nearly reached sixteen pints in five days, maintaining its specific gravity, whilst the albumen and dropsy entirely disappeared, and the patient was soon enabled to leave quite well.

The President asked had the urine of Dr. Cox's first patient been frequently tested since his illness. It was not an uncommon experience for patients to recover from uræmic convulsions and to live and pursue an active life for many years. Many years ago he had a case of a servant who lay for three days comatose, recovered and returned to her work. Several years afterwards she had a similar attack, recovered, and is still at her work. The relation between the amount of dropsy present and the quantity of urine passed was not simply a mechanical one. In some cases there was very little urine and very little dropsy; in others much dropsy and a large quantity of urine, and some recent experiments of Heidenhain tended to show that there was some peculiar connection between the cells of the tissues and the flow of lymph. With regard to diuretin he had not been favourably impressed. It was an unstable and costly compound, and there was not much clinical evidence to show that it acted well. In treating acute nephritis our great aim should be to do nothing to injure the patient. Chronic nephritis he believed to be scarcely ever, if ever, cured.

Dr. James Little said that he had tried diuretin in a case of ascites from contracted liver, and had not found it of use. With regard to the hot air bath in the treatment of cases of nephritis, he said that he had watched several very intelligent patients, and inquired from them whether they were relieved by it, and they said they were not, but were less comfortable. Theoretically it would seem that the removal of a large quantity of water through the skin would make it more difficult to wash out the tubules of the kidney. In only two cases had he seen a hot air bath do good, and in these the patient's life was endangered from the accumulation of a large quantity of fluid in the pleural sacs. He had seen many patients much disimproved by being given iron too early. Where uræmic symptoms threatened, a free purging with calomel seems to give relief.

Dr. Cox, in reply, said that his first case had been examined several times by a medical friend in the country, and that his urine had been tested. No albumen was found. He could not say whether any albumen was occasionally present, as he had not the opportunity of testing it; but the patient was alive, and to all appearances healthy. He had seen diuretin relieve a patient of his suffering from dysuria, and another patient of a scrofulous diathesis who had occasional attacks of dropsy. In some other cases he had not found it so successful. He had seen minim doses of croton oil and pilocarpin in from quarter to half grain doses relieve a patient who had suppression of urine and uræmia with maniacal symptoms following the introduction of instruments into the urethra and bladder.

The Section then adjourned.

Friday, April 6, 1894.

Dr. Grimshaw in the Chair.

Note on an Ataxic Case (*Patient exhibited*).

Dr. H. C. Tweedy read notes of this case, which will be found at page 10.

Dr. Doyle suggested that the man, perhaps, might be a malingerer. He recalled a case exhibited at the Academy some years ago of a patient in adult life, and supposed to be suffering from "chronic chorea." It turned out that the patient had been under treatment before and had learned the symptoms well. He ved to be a malingerer.

Dr. Burgess said he did not take Dr. Doyle's view of the case, and he thought the most interesting part of the case to be as to whether the disease was functional or organic. If it were functional it would probably get well after some time. He thought that very likely it was due to masturbation.

The Chairman narrated the history of a case he had seen in consultation many years ago. The patient was an athletic youth of nineteen, who had become partially paraplegic, and whose body used to be usually inclined to one side. There was thought to be something unusual in the appearances of the spinous processes, and the patient had an apparatus made for him, and was kept fairly quiet. He got quite well. Ten years afterwards he told him that he masturbated at that time, that he gave it up and recovered.

Dr. Tweedy, in reply to Dr. Doyle, said that he had no ground whatsoever for supposing this man to be a malingerer. As regards Dr. Burgess' view of its possibly being a functional disorder, the fact that he had not improved at all during the past month was against it.

Tetany.

Dr. Alfred Parsons read a clinical note on a case of tetany which occurred in a schoolboy, fourteen years old. For the past three or four years the patient had occasional attacks of tingling and pins and needles in his forearms and hands. Each attack lasted some twenty seconds, and he has had six or eight attacks in twenty-four hours; but till quite recently they were never followed by spasmodic contractures. On March 1st he was suddenly seized with tingling in the forearms, followed by rigidity of the extremities. The lower limbs were extended, the feet being somewhat inverted. The arms were flexed at elbows, the wrists flexed, thumb flexed and adducted; the fingers were flexed at the metacarpophalangeal joints, but extended at the other joint. There was flushing of face, and anterior aspect of trunk; profuse perspiration; very frequent action of heart; slight elevation of temperature (99° F.). The spasm in legs lasted a few hours, in arms a few days. The latter exhibited Trousseau's phenomenon on several occasions, but the Schultze-Chvostek reaction could not be obtained in the arms or face. The exalted electrical irritability described by Erb was not looked for. The boy returned to his schoolwork after four or five days, and since that only one similar, though less severe, attack has manifested itself. This seems to be the first case of tetany recorded in Ireland.

Dr. Burgess mentioned a case presenting somewhat similar symptoms to that of Dr. Parsons. In him, however, the convulsions were more general. The patient, in the absence of the doctor who attended him, was treated by another practitioner, who, taking a different view of the case, gave him a dose of turpentine and castor oil. He passed a large tapeworm and got quite well.

Dr. Dawson said that cases of tetany occurred most frequently in shoemakers and next so in tailors. It did not occur among female shoemakers. It was also liable to occur in women at the fifth month of pregnancy if this coincided with the season of the year at which it was prevalent. Sometimes it was associated with epilepsy and sometimes with cataract. The latter was supposed to indicate a very severe attack of the disease.

Dr. Parsons briefly replied, and

The Section then adjourned.

SECTION OF OBSTETRICS.

President—Richard D. Purefoy, M.B., Univ. Dubl.

Sectional Secretary—F. W. Kidd, M.D.

Friday, March 9, 1894.

The President in the Chair.

Ovaries and Tubes removed for Dysmenorrhœa.

Dr. A. J. Smith showed tubes and ovaries removed from a patient, aged thirty-five, in his gynæcological ward of St. Vincent's Hospital. The patient was a schoolmistress, and for the past 18 months suffered intensely during the menstrual periods; the pain was most agonising, and the flow very profuse. She was curetted on several occasions without benefit. She was kept in bed for two months, again curetted, and dosed with the usual remedies recommended for dysmenorrhœa without the slightest improvement in either the intervals of the pain or the heaviness of the menstrual discharge. The uterus felt very large and knobby, as if studded with small myomata. The tubes and ovaries were all adherent and hard to palpate. Nothing was to be done except to arrest the menstrual periods. Accordingly, on Feb. 22nd, the tubes and ovaries were removed. The patient suffered great pain after the operation, due to metrostaxis; the pain was only relieved when a discharge of blood from the uterus occurred. On the third day after operation an attack of pseudo-ileus supervened; this was relieved by a turpentine enema. Her recovery from this was rapid and uneventful. Stitches removed on eighth day; union good.

Dr. Atthill said that there were some severe cases of dysmenorrhœa which justified removal of the ovaries. In a case in which he had performed the operation the patient was compelled to spend three weeks out of four in bed, and she was also a nun. She is now quite well.

Cases of Uterine Myomata treated by Injection of Ergot.

The **President** detailed some cases of uterine myoma suffering from pain, hæmorrhage, and—in one case—troublesome vomiting. Injections of ergot in two cases caused the disappearance of the tumour; in nearly all controlled the bleeding and relieved the pain, and in one case stopped the vomiting also. In only one case was there trouble from sloughing of the tumour. In one the hæmorrhage was not checked, and removal of the ovaries effected a cure. The preparation used was Squibb's ergot—a syringeful the amount generally used—at intervals of several days, and in no case was abscess caused by the treatment.

Dr. A. J. Smith said that at the present day, when one hears so much of operative gynæcology, it is in some cases useful to adopt less dangerous methods. The list of cases—small though it is—brought forward by the President shows that there are a certain number of cases which can be benefited by the hypodermic injection of ergot. It is remarkable that in his cases the women were nearly all at the centre of their child-bearing period. His own experience with regard to ergot hypodermically for these cases was unfavourable. When Assistant Master of the Rotunda he had tried it regularly in two or three cases without benefit, and the local annoyance following the injections rendered the patient's lives miserable. He would like to ask the President in what class of cases he would recommend ergot hypodermically.

Dr. Atthill said that he had given this treatment a fair trial in the Rotunda many years ago and had been unfavourably impressed by it. He had found local abscesses which caused considerable trouble to follow his injections. He had used three preparations, none of which were "Squibb's," which was not then in existence. He had employed it in one remarkable case. There was a large fibroid projecting into the interior of the uterus. He dilated the uterus and removed a large portion of it. He then gave the patient ergot hypodermically. This caused such violent pains that he was forced to give it up. He concluded that ergot will not originate uterine contraction in a healthy woman, but that it will do so where there is a mass in the womb ready to be expelled. In consequence, he had given ergot in all cases of threatened abortion. If it does not expel the ovum it acts as a tonic to the uterus.

Dr. Purefoy, in reply, stated that this treatment was useful for that class of patients who were scared by the very mention of the word operation, and also in those cases in which the fibroid was intra-mural and not projecting into the cavity of the uterus in a polypoid form, nor existing as a pedunculated sub-peritoneal fibroid.

Ovariotomy on a Lunatic and Life-History of a Uterine Fibroid.

Dr. Lombe Atthill detailed the particulars of a case in which he watched the growth of a uterine fibroid from nearly its earliest stage, till it attained the size of the fœtal head at full term, its growth being attended by profuse, sometimes alarming, hæmorrhage. About two years and a half ago the patient became insane and was admitted into an asylum, shortly after which menstruation ceased to recur. Recently her attendant observed her size to increase rapidly, and Dr. Atthill being requested to see her, diagnosticated a large ovarian cyst. Ovariotomy was performed by him, and the opportunity was taken of examining the condition of the uterus. It was found to have atrophied to such an extent that it was but little larger than the healthy organ should be previous to the occurrence of the climacteric period. This rapid atrophy was doubtless accelerated by abstinence; specially during the first month of insanity she was with difficulty induced to take any food, and at present barely sufficient to support life. Although she could not be prevented from sitting up in bed frequently, even on the day on which the operation had been performed, she made a rapid recovery after it, the temperature only once rising to 100°; that was on the day succeeding the operation. She was stated to be in her fiftieth year.

Dr. A. J. Smith remarked that it was a very early age for a uterine fibroid to disappear. Usually the climacteric period was delayed. He knew that Dr. Savage had performed several ovariotomies on lunatics, but without satisfactory results as regards their mental condition.

Dr. Atthill, in reply, stated that the operation was done merely to prolong the patient's life. He did not expect any improvement in her mental state, as she was sullen, and improvement is to be looked for in women who have a strong sexual desire. His patient had not so at all. The early atrophy of the uterus, he thought, could be explained by her emaciation. When she became insane it was with great difficulty she could be induced to eat.

The Section then adjourned.

SECTION OF PATHOLOGY.

President—Prof. J. Alfred Scott.

Sectional Secretary—J. B. Story, F.R.C.S.I.

Friday, March 16, 1894.

The President in the Chair.

Renal Tuberculosis.

Dr. Myles showed the kidneys and intestines of a boy who had been under his care at the Richmond Hospital. His history was very vague, as the lad was dull and reticent, but he complained of pain over the pubes and incontinence of urine. His urine was normal in quantity, sp. gr. 1012, and contained pus. He was suspected to be suffering from stone in the bladder, but examination by the sound was postponed owing to his debility. He died suddenly four days after admission. On *post-mortem* examination his right kidney was greatly enlarged, and the cortex subdivided into cavities of about an inch in diameter filled with putty-like *debris*. The right ureter exhibited small tubercular ulcers along its entire length. The left kidney was only slightly enlarged, but was in a more advanced stage of tubercular degeneration, being converted into a mass of caseous material calcifying in parts. The left ureter was occluded, apparently from cicatricial contraction. The mucous membrane of the bladder showed acute tubercular infection, being studded with millet-seed tubercles. The small intestine similarly was acutely infected, most marked in the upper parts. The lungs were quite free from tubercles, and Dr. Myles pointed out the extreme rarity of this condition in the lungs under such circumstances, and the unusual manner in which a chronic process in the kidneys was succeeded by an acute process in bladder and intestines.

Dr. Bennett asked had the urine been examined for tubercle bacilli.

Dr. Myles replied that it had not, but that after death he had taken some of the *débris* from one of the cavities in the kidney and examined it. He found, however, only a few bacilli in it.

Tubercular Pericarditis.

Dr. Little showed a specimen of pericarditis which had occurred in a woman who had, four months previously, suffered from typhoid fever, and who showed several caseating masses in the lungs, but who did not suffer either from rheumatic fever or renal disease.

Dr. Bewley described a section which he had made through one of the small nodules growing on the peritoneal surface of the intestine, at a place corresponding to the Peyer's patch. The floor of the Peyer's patch, which was devoid of mucous membrane, was formed of rather dense granulation tissue, and the little nodule attached to it was composed of fibrous tissue with a small mass of caseous material and in addition some giant cells. On account of these he thought the nodule was probably tubercular. He regarded the case as one of double infection, both typhoid and tuberculosis.

Dr. Walter Smith, who had seen the patient some three months previous to her death, described the illness from which she then suffered. She had an enlarged spleen and a well-marked crop of rose-coloured spots. She had also some pyrexia. Before admission to hospital she stated that she had a pain in her right side, and on admission a friction sound was discovered, and there was a localised patch of dulness corresponding to the caseous mass shown in the specimen. She passed through a course of typhoid fever, but she continued to have some pyrexia. She left hospital and came up several times afterwards complaining of cough and loss of flesh and appetite. He thought that it was exceedingly interesting to see a typhoid ulcer in process of regeneration. The mucous membrane had not yet had time to spread over it, and it was very seldom one got an opportunity of seeing one in this stage.

Dr. Bennett asked had any microscopic examination been made of the thickened pericardium.

Dr. Boyd said he thought the case looked like one of general tuberculosis. He was glad that Dr. Little had not described it as a case of idiopathic pericarditis. We cannot believe that inflammation starts without a cause.

Dr. J. W. Moore advanced the theory that the case might have been one of pyæmia following typhoid fever. He said the mass in the lung might possibly be due to an embolus of a septic nature.

Dr. James Little, in replying, stated that as yet no microscopic examination had been made of the pericardium, but he hoped to have it done. He also said that the mass in the lungs resembled in all respects to the naked eye a caseous mass, and not a portion of lung affected with embolus. There was also a caseous gland in the mediastinum.

Spleno-medullary Leukæmia.

Dr. M'Weeney read a paper on this case, which was that of a man, aged fifty, admitted for obscure symptoms into the Mater Misericordiæ Hospital, under the care of Dr. Boyd. After detailing the results of modern research into the various cells commonly included in the class leucocyte, and the various granulations described by Ehrlich and his pupils, the speaker gave the results of his own examination of the blood of the case under observation. On admission the red discs were 67 per cent. of normal, and were to the leucocytes in the proportion of 8·8 to 1. During the patient's stay in hospital the red sank to 44 per cent., whilst the white corpuscles also showed a marked diminution, the proportion being now 1 to 35. Large myelocytes, often with eosinophil granulations, were very frequent, and the number of eosinophil cells of all kinds was much above normal. The mast-cells were numerous, but he could not with certainty confirm Ehrlich's description of the distribution of neutrophil granules. Nucleated red blood corpuscles, both normoblasts and megaloblasts, were very numerous, especially the former, and the nuclei of the former were frequently found lying free, with circumstances that seemed to point to their extrusion from the cell. Their recognition was greatly facilitated by the marked metachromatism (with Ehrlich's acid hæmatoxylin and eosin) which they showed when compared with the nuclei of the leucocytes. The importance of this observation, as regards the development of the red discs, was discussed. Many of the nuclei of the nucleated red corpuscles presented so regularly lobulated an appearance as to strongly suggest a somewhat obscured mitotic process in the rosette stage.

Dr. Boyd gave a short account of the clinical symptoms of the case on whom Dr. M'Weeney's observations had been made. The patient complained of breathlessness on exertion and feverishness, and of being unable to do his work. There was nothing abnormal about the heart or lungs or the alimentary canal. The patient had an enlarged spleen, a slightly enlarged liver, and was slightly anæmic. He lived in a marshy district, but never had any sort of malarial fever. The pains in his bones were very transient indeed. He considered the case might be one of leukæmia, and was greatly interested when it was found to be of the spleno-medullary variety. The patient was treated with arsenic and improved under it.

Mr. M'Ardle asked Dr. M'Weeney had he ever examined the blood in cases of sarcomata. In some of these cases the patients complained of pains in their bones; spontaneous fractures took place sometimes in the red medullary portions of them, and the blood was abnormally pale. He thought there might be a connection between leukæmia and sarcomata.

Dr. M'Weeney stated that he had not examined the blood of patients with sarcomata, but that the next time he got an opportunity of doing so he would.

Perforating Wound of Pharynx.

Mr. M'Ardle reported a case of perforating wound of pharynx, causing mediastinitis.

Mr. Myles drew attention to the great tolerance the pharynx has of foreign bodies. He remembered a somewhat similar case in which the fatal symptoms likewise took some days to develop. A man came to hospital stating that he had swallowed a fish bone. He was able to swallow fluids but not solids. No probang was passed. Five or six days afterwards he became feverish and shortly died. A small fish bone was found to have perforated the pharynx and also the trachea. A mediastinal abscess had formed, and the patient had, in addition, purulent pneumonia.

The Section then adjourned.

SECTION OF STATE MEDICINE.

President—**D. Edgar Flinn**, F.R.C.S.I.

Sectional Secretary—**Ninian Falkiner**, M.B.

Friday, April 20, 1894.

The **President** in the Chair.

Some points in connection with the Administration of Hospital Relief.

Dr. H. C. Tweedy read a paper on this subject. [It will be found in Vol. XCVII., p. 490.]

Dr. Grimshaw said that although everybody admitted the facts Dr. Tweedy had stated, it was very difficult to see how they were to be remedied. As to the in-patient abuse, people should not be taken into hospital as pay-patients unless, all their circumstances having been inquired into, it was found that they were in reduced straits. If patients fairly well-to-do come from the country, let them take lodgings and have a medical attendant. An institution such as exists in London, Berlin, and Vienna, and which resembles a medical hotel, in which each patient could have his own medical attendant, was very much needed in Dublin. It was very much more difficult to deal with the out-patient department on account of it being so hard to decide whether a person was deserving or not of advice.

Dr. Cox thought that one of the best ways to remedy this state of affairs was to give as much publicity as possible to Dr. Tweedy's paper. No doubt a great abuse existed. Frequently artisans earning £2 a week were admitted as patients into hospital. Usually 30s. out of the £2 went in drink, and during the time of their stay in hospital the wife and children had to be supported by charity or outdoor relief, which, in the event of the patient's death, became a permanent burden on the public. He also thought there should be more co-operation between the dispensary and hospital staffs. Very often dispensary doctors found it necessary to have patients sent to hospital on account of being unable to get proper treatment for them in their own miserable homes. Members of the hospital staff did not always keep this in mind.

Dr. Heard said that the plan adopted in Monkstown Hospital was found to answer very well. Admission to the hospital or the dispensary was by ticket. Tickets were given to subscribers at the rate of twelve for £1 1s. The subscribers distributed them to needy people with whom they were acquainted as necessity arose. A local doctor also could recommend a case to hospital, and if there was a vacancy the patient was admitted.

Dr. Doyle said that it was not the very poor who came to the general hospitals for relief—they went to the Union hospitals. The Poor Law institutions had been started to supply a want which now no longer existed as it was supplied by the general hospitals. He thought, therefore, that eventually the Poor Law institutions would have to be abolished.

Dr. W. J. Smyly said he thought that the in-patient abuse of hospitals by well-to-do people bore very heavily on specialists. Many of the so-called private hospitals at present existing in Dublin were nothing better than clean lodginghouses. No proper operating room existed in them. He also considered that doctors would have to co-operate against this hospital abuse. They should refuse to admit well-to-do patients into hospitals.

Dr. F. W. Kidd thought that the subject might be very fittingly brought forward at the next annual meeting of the Dublin Branch of the British Medical Association.

Dr. Tweedy briefly replied.

Demonstration of the Typhoid Bacillus in Drinking Water.

Dr. M'Weeney read a paper on a specimen of pump-water from a small village near Waterford, in which a severe outbreak of enteric fever had occurred. Dr. W. R. Morris, who had had many of the cases in his practice, suspected the water, and sent it up to Dr. M'Weeney. The pump was surrounded by manure heaps, and "slush" had been emptied into it with a view to make it work. Plate cultivations on gelatine at 22° C. were speedily destroyed by the numerous liquefying colonies present, so recourse was had to Parietti's method, by which positive results were at once obtained. The Parietti-tube, on being plated-out, proved to be pure cultivations of Eberth's bacillus, and the result was checked by microscopic examination, and culture in potato and in broth, to which glucose and lactose had been added, according to the plan proposed by Theobald Smith. Dr. Morris's suspicion had thus been fully justified. The journals did not seem to contain, so far as he had had time to consult them, a similar case occurring in the British Islands. Circumstantial evidence, more or less conclusive, had been adduced in many cases, but not raised to the level of certainty, by the positive result of bacteriological examination.

Dr. Thompson asked was it necessary that putrefactive-changes should be taking place in the media in which the typhoid baccilli were for the latter to have the power of causing typhoid fever in a person.

The President alluded to the injurious habit prevalent in many villages of throwing soiled and impure water down pumps to start their suction power. He had lately investigated an epidemic of typhoid fever in which he believed this to have been the cause.

Dr. M'Weeney, in reply to Dr. Thompson, said that this opened up a wide and difficult question. Some members of the French school held that the Bacterium coli commune, when growing for some time in sewers and such like media, was the organism which caused typhoid fever.

The Section then adjourned.

INTERNATIONAL CONGRESS REPORT.

The *Giornale Ufficiale* was published under the direction of the Congress Secretariat in four languages—Italian, French, German, and English. We have already noticed the first appearance, during the sitting of the Congress, of *Il Policlinico.*

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.R.C.P.I.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, May 19, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	April 28	May 5	May 12	May 19		April 28	May 5	May 12	May 19
Armagh -	14·0	0·0	42·1	21·0	Limerick -	16·8	16·8	28·1	16·8
Belfast -	25·8	27·7	28·3	27·3	Lisburn -	21·3	21·3	17·0	25·7
Cork -	20·1	25·6	29·1	23·5	Londonderry	12·6	15·7	18·8	11·0
Drogheda	17·6	35·1	8·8	17·6	Lurgan -	4·6	22·8	13·7	9·1
Dublin -	22·8	24·2	19·2	24·6	Newry -	20·1	24·1	16·1	16·1
Dundalk -	4·2	29·3	16·8	12·6	Sligo -	20·3	25·4	10·2	25·4
Galway -	30·2	34·0	3·8	15·1	Waterford -	20·0	7·5	12·5	22·5
Kilkenny	37·8	28·3	23·6	4·7	Wexford -	31·6	27·1	18·1	27·1

In the week ending Saturday, April 28, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 18·5), was equal to an average annual death-rate of 18·3 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·0 per 1,000. In Glasgow the rate was 18·5, and in Edinburgh it was 19·0.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 22·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·2 per 1,000, the rates varying from 0·0 in seven of the districts to 10·2 in Sligo—the 4 deaths from all causes registered in that district comprising 2 from typhus. Among the 133 deaths from all causes registered in Belfast are 13 from measles (a number equal to that for the preceding week), 5 from whooping-cough, 2 from diphtheria, 4 from enteric fever, and 2 from diarrhœa. The 29 deaths in Cork comprise 3 from measles and 1 from diarrhœa. Among the 8 deaths in Waterford are 3 from scarlatina. The 4 deaths in Drogheda comprise 1 from typhus and 1 from whooping-cough.

In the Dublin Registration District the registered births amounted to 217—107 boys and 110 girls; and the registered deaths to 159—78 males and 81 females.

The deaths, which are 39 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·7 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 22·8 per 1,000. During the first seventeen weeks of the current year the death-rate averaged 29·8, and was 1·6 under the mean rate in the corresponding period of the ten years 1884–1893.

Twenty deaths from zymotic diseases were registered, being 7 over the low number for the preceding week, but 3 under the average for the 17th week of the last ten years. They comprise 4 from measles (all of which occurred in No. 3 North City—Blackhall-place—District), 2 from scarlet fever (scarlatina), 1 from influenza, 6 from whooping-cough, 1 from enteric fever, 2 from diarrhœa, and 1 from dysentery.

Ten cases of enteric fever were admitted to hospital, being 1 over the admissions for the preceding week and 1 under the number for the week ended April 14. Five enteric fever patients were discharged and 48 remained under treatment on Saturday, being 5 over the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 5, being 4 under the admissions for the preceding week and also under the respective numbers for the earlier weeks of April: 11 patients were discharged and 56 remained under treatment on Saturday, being 6 under the number in hospital at the close of the preceding week.

Only 3 cases of measles were admitted against 21 for the preceding week: 22 cases of the disease remained under treatment in hospital on Saturday.

The mortality from diseases of the respiratory system was comparatively low, the number of deaths from these causes registered being 28 or 13 under the average for the corresponding week of the last ten years. The 28 deaths comprise 15 from bronchitis and 9 from pneumonia or inflammation of the lungs.

In the week ending Saturday, May 5, the mortality in thirty-three large English towns, including London (in which the rate was 17·2) was equal to an average annual death-rate of 17·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 20·1 per 1,000. In Glasgow the rate was 22·0, and in Edinburgh it was 17·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 24·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in nine of the districts to 8·5 in Lisburn—the 5 deaths from all causes registered in that district comprising 2 from whooping-cough. Among the 143 deaths from all causes registered in Belfast are 18 from measles (an increase of 5 as compared with the number for the preceding week), 2 from whooping-cough, 1 from simple continued fever, 3 from enteric fever, and 2 from diarrhœa. The 37 deaths in Cork comprise 4 from measles, 1 from scarlatina, 1 from typhus, and 1 from diarrhœa.

In the Dublin Registration District the registered births amounted to 216—113 boys and 103 girls; and the registered deaths to 165—68 males and 97 females.

The deaths, which are 24 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 24·6 in every 1,000 of the population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 24·2 per 1,000. During the first eighteen weeks of the current year the death-rate averaged 29·5, and was 1·8 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 17, being 6 below the average for the corresponding week of the last ten years and 3 under the number for the week ended April 28. The 17 deaths comprise 3 from measles, 2 from influenza and its complications, 3 from whooping-cough, and 3 from enteric fever.

There were only 3 cases of enteric fever admitted to hospital, being 7 under the admissions for the preceding week and 6 under the number for the week ended April 21. Five enteric fever patients were discharged, 1 died, and 45 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

Twelve cases of scarlatina were admitted to hospital, against 5 in the preceding week, and 9 in the week ended April 21: 4 patients were discharged and 64 remained under treatment on Saturday, being 8 over the number in hospital on the previous Saturday.

The hospital admissions for the week included, also, 3 cases of measles, being equal to the number for the preceding week: 19 cases of the disease remained under treatment in hospital on Saturday.

Thirty deaths from diseases of the respiratory system were registered, being 2 over the number for the preceding week, but 10 under the average for the eighteenth week of the last ten years. They comprise 18 from bronchitis and 7 from pneumonia or inflammation of the lungs.

In the week ending Saturday, May 12, the mortality in thirty-three large English towns, including London (in which the rate was 18·4), was equal to an average annual death-rate of 18·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·8 per 1,000. In Glasgow the rate was 21·4, and in Edinburgh it was 18·1.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 22·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·9 per 1,000, the rates varying from 0·0 in seven of the districts to 14·0 in Armagh—the 6 deaths from all causes registered in that district comprising 1 from measles and 1 from typhus. Among the 146 deaths from all causes registered in Belfast are 29 from measles (an increase of 11 as compared with the number for the preceding week), 1 from scarlatina, 5 from whooping-cough, 1 from diphtheria, 4 from enteric fever, and 2 from diarrhœa. The 42 deaths in Cork comprise 3 from measles, 1 from whooping-cough, and 1 from enteric fever. The 12 deaths in Londonderry comprise 1 from diphtheria and 1 from diarrhœa.

In the Dublin Registration District the registered births amounted to 204—100 boys and 104 girls; and the registered deaths to 136—74 males and 62 females.

The deaths, which are 47 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·3 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 19·2 per 1,000. During the first nineteen weeks of the current year the death-rate averaged 29·0, and was 2·1 under the mean rate in the corresponding period of the ten years 1884-1893.

Only 15 deaths from zymotic diseases were registered, being 6 below the average for the corresponding week of the last ten years and 2 under the number for the week ended May 5. The 15 deaths comprise 1 from scarlet fever (scarlatina), 2 from influenza and its complications, 8 from whooping-cough, (against 3 from that disease for the preceding week), 1 from enteric fever, and 2 from diarrhœa.

Nine cases of enteric fever were admitted to hospital, against 3 admissions in the preceding week and 10 in the week ended April 28: 7 enteric fever patients were discharged, 2 died, and 45 remained under treatment on Saturday, being equal to the number in hospital at the close of the preceding week.

The number of cases of scarlatina admitted to hospital was 11, being 1 under the admissions for the preceding week, but 6 over the number for the week ended April 28: 9 patients were discharged and 66 remained under treatment on Saturday, being 2 over the number in hospital on Saturday, May 5.

The hospital admissions for the week included, also, 3 cases of measles and 2 of typhus: 14 cases of the former and 4 of the latter disease remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system, which had risen from 28 for the week ended April 28 to 30 for the following week, fell to 17, or less than one-half of the average number (36) for the corresponding week of the last ten years. The 17 deaths comprise 5 from bronchitis and 9 from pneumonia or inflammation of the lungs.

In the week ending Saturday, May 19, the mortality in thirty-three large English towns, including London (in which the rate was 17·6), was equal to an average annual death-rate of 17·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 17·4 per 1,000. In Glasgow the rate was 17·6, and in Edinburgh it was 18·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 23·5 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·9 per 1,000, the rates varying from 0·0 in twelve of the districts to 6·0 in Belfast—the 141 deaths from all causes registered in that district comprising 22 from measles (a decrease of 7 as compared with the number for the preceding week), 1 from whooping-cough, 2 from diphtheria, 4 from enteric fever, and 2 from diarrhœa. Among the 34 deaths from all causes registered in Cork are 3 from measles. The Registrar of Lisburn District remarks—"Three cases of diphtheria during the week."

In the Dublin Registration District the registered births amounted to 145—79 boys and 66 girls; and the registered deaths to 173—96 males and 77 females.

The deaths, which are 5 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·8 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the district, the rate was 24·6 per 1,000. During the first twenty weeks of the current year the death-rate averaged 28·8, and was 2·0 under the mean rate for the corresponding period of the ten years 1884–1893.

Twenty-five deaths from zymotic diseases were registered, being 10 over the low number for the preceding week and 2 in excess of the average for the 20th week of the last ten years. They comprise 1 from scarlet fever (scarlatina), 1 from typhus, 2 from influenza and its complications, 5 from whooping-cough, 2 from diphtheria, 4 from enteric fever, 3 from diarrhœa, and 3 from erysipelas.

Ten cases of enteric fever were admitted to hospital, being 1 over the admissions for the preceding week: 4 enteric fever patients were discharged and 51 remained under treatment on Saturday, being 6 over the number in hospital on Saturday, May 12.

The number of cases of scarlatina admitted to hospital was 7, being 4 under the admissions for the preceding week, and 5 under the number for the week ended May 5. Twelve scarlatina patients were discharged and 61 remained under treatment on Saturday, being 5 under the number in hospital at the close of the preceding week.

The hospital admissions included, also, 2 cases of measles, but no cases of typhus were received: 13 cases of measles and 4 of typhus remained under treatment in hospital on Saturday.

As in the preceding week, only 17 deaths from diseases of the respiratory system were registered: the average number for the 20th week of the last ten years was 34. The 17 deaths comprise 6 from bronchitis and 6 from pneumonia or inflammation of the lungs.

VITAL STATISTICS

For four Weeks ending Saturday, June 16, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	May 26.	June 2.	June 9.	June 16.		May 26.	June 2.	June 9.	June 16.
Armagh -	7·0	7·0	28·0	35·1	Limerick -	18·2	21·1	11·2	15·4
Belfast -	26·7	24·6	29·2	24·8	Lisburn -	21·3	4·3	21·3	25·7
Cork -	16·6	27·0	28·4	22·1	Londonderry	15·7	37·7	7·9	15·7
Drogheda	26·4	35·1	30·7	30·7	Lurgan -	9·1	18·2	9·1	31·9
Dublin -	21·2	24·2	20·1	22·8	Newry -	20·1	12·1	8·1	12·1
Dundalk -	20·9	8·4	16·8	8·4	Sligo -	5·1	20·3	10·2	15·2
Galway -	34·0	11·3	41·5	34·0	Waterford -	32·5	27·5	15·0	27·5
Kilkenny	28·3	9·4	18·9	23·6	Wexford -	22·6	13·5	9·0	9·0

In the week ending Saturday, May 26, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 17·3) was equal to an average annual death-rate of 17·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·0 per 1,000. In Glasgow the rate was 20·3. and in Edinburgh it was 16·7.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 22·3 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·8 per 1,000, the rates varying from 0·0 in eleven of the districts to 8·5 in Lisburn—the 5 deaths from all causes registered in that district comprising 2 from whooping-cough. Among the 138 deaths from all causes registered in Belfast are 22 from measles (being equal to the number for the preceding week), 1 from scarlatina, 5 from whooping cough, and 2 from diarrhœa.

In the Dublin Registration District the registered births amounted to 213—103 boys and 110 girls—and the registered deaths to 149—69 males and 80 females.

The deaths, which are 14 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 22·2 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 21·2 per 1,000. During the first twenty-one weeks of the current year the death-rate averaged 28·5, and was 2·0 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 23, being 3 in excess of the average for the corresponding week of the last ten years, but 2 under the number for the week ended May 19. The 23 deaths comprised 3 from influenza and its complications, 8 from whooping-cough, 4 from enteric fever, and 3 from diarrhœa.

The number of cases of enteric fever admitted to hospital was 6, being a decline of 4 as compared with the admissions for the preceding week, and 3 under the number for the week ended May 12: 13 enteric fever patients were discharged, 2 died, and 42 remained under treatment on Saturday, being 9 under the number in hospital at the close of the preceding week.

Ten cases of scarlatina were admitted to hospital, being 3 in excess of the admissions for the preceding week, but 1 under the number for the week ended May 12. Eleven patients were discharged and 60 remained under treatment on Saturday, being one under the number in hospital on Saturday, May 19.

Only 15 deaths from diseases of the respiratory system were registered, being 2 under the low number for the preceding week and 12 below the average for the 21st week of the last ten years. The 15 deaths comprise 9 from bronchitis and 4 from pneumonia or inflammation of the lungs.

In the week ending Saturday, June 2, the mortality in thirty-three large English towns, including London (in which the rate was 16·3). was equal to an average annual death-rate of 17·0 per 1,000 persons living. The average rate for eight principal towns in Scotland was 20·3 per 1,000. In Glasgow the rate was 20·9, and in Edinburgh it was 17·7.

The average annual death-rate in the sixteen principal town districts of Ireland was 23·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in eleven of the districts to 5·6 in Belfast—the 127 deaths from all causes registered in that district comprising 11 from measles (a decrease of 11 as compared with the number for the preceding week), 2 from scarlatina, 4 from whooping-cough, 3 from diphtheria, 1 from simple-continued fever, 4 from enteric fever, and 4 from diarrhœa. The 39 deaths in Cork comprise 4 from measles.

In the Dublin Registration District the registered births amounted to 201—110 boys and 91 girls; and the registered deaths to 169—82 males and 87 females.

The deaths, which are 11 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 25·2 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 24·2 per 1,000. During the first twenty-two weeks of the current year the death-rate averaged 28·4, and was 1·8 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 18, being a decline of 5 as compared with the number for the preceding week and 1 below the average for the 22nd week of the last ten years. The 18 deaths comprised 1 from influenza, 5 from whooping-cough, 1 from ill-defined fever, 3 from enteric fever, 3 from diarrhœa, and 1 from erysipelas.

There were 5 cases of small-pox under treatment in hospital on Saturday: all were admitted during the week.

Eight cases of enteric fever were admitted to hospital, being 2 over the admissions for the preceding week: 5 enteric fever patients were discharged, 1 patient died, and 44 cases remained under treatment on Saturday, being 2 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 4 cases of scarlatina (being 6 under the number of cases of that disease admitted during the preceding week), but no cases of either measles or typhus were received: 60 cases of scarlatina remained under treatment on Saturday, being equal to the number in hospital on the previous Saturday.

Deaths from diseases of the respiratory system, which had been only 17, 17, and 15 in the preceding three weeks, increased to 33, or 7 over the average for the corresponding week of the last ten years. The 33 deaths comprise 19 from bronchitis and 11 from pneumonia or inflammation of the lungs.

In the week ending Saturday, June 9, the mortality in thirty-three large English towns, including London (in which the rate was 16·7), was equal to an average annual death-rate of 16·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 19·3 per 1,000. In Glasgow the rate was 19·2, and in Edinburgh it was 20·0.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 22·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in nine of the districts to 7·0 in Armagh—the 4 deaths from all causes registered in that district comprising 1 from measles. Among the 151 deaths from all causes registered in Belfast are 19 from measles) an increase of 8 as compared with the number for the preceding week), 1 from diphtheria, 7 from enteric fever, and 3 from diarrhœa. The 41 deaths in Cork comprise 5 from measles, 1 from enteric fever, and 1 from diarrhœa.

In the Dublin Registration District the registered births amounted to 223—118 boys and 105 girls; and the registered deaths to 144—71 males and 73 females.

The deaths, which are 19 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 21·5 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the district, the rate was 20·1 per 1,000. During the first twenty-three weeks of the current year the death-rate averaged 28·1, and was 1·9 under the mean rate in the corresponding period of the ten years 1884–1893.

Only 13 deaths from zymotic diseases were registered, being 8 below the average for the corresponding week of the last ten years and 5 under the number for the week ended June 2. The 13 deaths comprised 4 from influenza and its complications, 1 from whooping-cough, 1 from enteric fever, 4 from diarrhœa, 1 from erysipelas, and 1 from cerebro-spin. l meningitis.

Two cases of small pox were admitted to hospital: in the preceding week 5 cases of the disease were received. The 7 cases remained under treatment on Saturday.

Ten cases of enteric fever were admitted to hospital against 8 admissions for the preceding week. Five enteric fever patients were discharged, and 49 remained under treatment on Saturday, being 5 over the number in hospital on June 2.

The hospital admissions for the week included, also, 7 cases of scarlatina (being 3 over the number of cases of that disease admitted during the preceding week, but 3 under the number for the week ended May 26) and 2 cases of typhus: 58 cases of scarlatina and 1 case of typhus remained under treatment in hospital on Saturday.

Deaths from diseases of the respiratory system which had risen from 15 for the week ended May 26 to 33 for the following week, fell to 26, or 2 under the average for the corresponding week of the last ten years. The 26 deaths comprise 12 from bronchitis, 6 from pneumonia or inflammation of the lungs, and 2 from pleurisy.

In the week ending Saturday, June 16, the mortality in thirty-three large English towns, including London (in which the rate was 16·0), was equal to an average annual death-rate of 15·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 17·9 per 1,000. In Glasgow the rate was 19·4, and in Edinburgh it was 14·4.

The average annual death-rate in the sixteen principal town districts of Ireland was 22·8 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in eleven of the districts to 7·0 in Armagh—the 5 deaths from all causes registered in that district comprising 1 from measles. Among the 128 deaths from all causes registered in Belfast are 14 from measles (a decrease of 5 as compared with the number for the preceding week), 1 from scarlatina, 6 from whooping-cough, 1 from diphtheria, 3 from enteric fever, and 1 from diarrhœa.

In the Dublin Registration District the registered births amounted to 202—106 boys and 96 girls; and the registered deaths to 165—88 males and 77 females.

The deaths, which are 8 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 24·6 in every 1,000 of the population. Omitting the deaths (numbering 12) of persons admitted into public institutions from localities outside the district, the rate was 22·8 per 1,000. During the first twenty-four weeks of the current year the death-rate averaged 27·8, and was 1·9 under the mean rate in the corresponding period of the ten years 1884-1893.

The number of deaths from zymotic diseases registered was 18, being 5 over the low number for the preceding week, but 3 under the average for the 24th week of the last ten years. The 18 deaths comprised 1 from measles, 1 from scarlet fever (scarlatina), 2 from influenza and its complications, 7 from whooping-cough, 1 from enteric fever, 2 from diarrhœa, and 1 from erysipelas.

One case of smallpox was admitted to hospital in the course of the week: all the cases (8) admitted during the previous three weeks remained under treatment on Saturday.

Eleven cases of enteric fever were admitted to hospital against 10 in the preceding week and 8 in the week ended June 2: 8 enteric fever patients were discharged, and 52 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 8 cases of scarlatina: 54 cases of this disease remained under treatment on Saturday, being 4 under the number in hospital on the previous Saturday.

The number of deaths from diseases of the respiratory system registered was 19, being 7 under the number for the preceding week, and also 7 below the average for the 24th week of the last ten years. The 19 deaths comprise 8 from bronchitis, 4 from pneumonia or inflammation of the lungs, and 2 from pleurisy.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15′ *W., for the Month of May,* 1894.

Mean Height of Barometer,	29·970 inches.
Maximal Height of Barometer (on 1st, at 9 a.m.),	30·491 „
Minimal Height of Barometer (on 9th, at 9 p.m., and 10th, at 9 a.m.),	29·543 „
Mean Dry-bulb Temperature,	49·2°.
Mean Wet-bulb Temperature,	45·8°
Mean Dew-point Temperature,	42·0°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·267 inch.
Mean Humidity,	77·2 per cent.
Highest Temperature in Shade (on 25th),	64·5°.
Lowest Temperature in Shade (on 21st),	33·0°.
Lowest Temperature on Grass (Radiation) (on 21st)	26·9°.
Mean Amount of Cloud,	59·8 per cent.
Rainfall (on 17 days),	3·558 inches.
Greatest Daily Rainfall (on 15th),	1·330 inches.
General Directions of Wind,	W., N.N.W., N.E.

Remarks.

This was a cold, changeable month, more like an ordinary March than May. Very heavy rainfalls occurred in nearly all parts of the British Islands at one time or another—in the week ending Saturday, the 19th, as much as 2·617 inches fell in Dublin and 3·210 inches at the Ordnance Survey Office, Phœnix Park. On the other hand, there was no measurable rainfall in Dublin during the following week, whereas 1·63 inches fell at the North Foreland, in Kent, this large fall being followed by a downpour of 1·19 inches on Sunday, the 27th. In Dublin the mean temperature of the month was actually lower than that of April by nearly one degree, and it was 7·5° below that of May, 1893—49·2° compared with 56·7°. The mean dry bulb readings at 9 a.m. and 9 p.m. were, no doubt, half a degree above the corresponding value for April, but this was due to a rapid rise of temperature in the early morning caused by bright sunshine after clear, frosty nights, May, 1894, ranks fourth in order of coldness within the past thirty years.

In Dublin the arithmetical mean temperature (49·2°) was decidedly below the average (52·0°); the mean dry bulb readings at 9 a.m. and 9 p.m. were also 49·2°. In the twenty-nine years ending with 1893, May was coldest in 1869 (M. T. = 48·2°); in 1885 (M.T. = 48·7°), and in 1879 ("the cold year") M. T. = 48·8°). It was warmest in 1893 (M. T. = 56·7°), 1868 (the "warm year") M. T. = 55·8°), and 1875 (M. T. = 54·9°). In 1886 the M. T. was 50·5°; in 1887, 51·8; in 1888 52·5°; in 1889, 54·6°; in 1890, 53·2°; in 1891, only 49·6°, and in 1892, 53·8°.

The mean height of the barometer was 29·970 inches, or 0·019 inch below the corrected average value for May—namely, 29·989 inches. The mercury rose to 30·491 inches at 9 a.m. of the 1st, and fell to 29·543 inches at 9 p.m. of the 9th and also at 9 a.m. of the 10th. The observed range of atmospheric pressure was, therefore, 0·948 of an inch.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 49·2°, or only half a degree above the value for April 1894 (48·7°). Using the formula, *Mean Temp.* = *Min.* + (*max.* —*min.* × ·47), the value was 48·8°, or 2·8° below the average mean temperature for May, calculated in the same way, in the twenty-five years 1865–89, inclusive (51·6°). The arithmetical mean of the maximal and minimal readings was 49·2°, compared with a twenty-five years average of 52·0°. On the 25th the thermometer in the screen rose to 64·5°—wind, N.; on the 21st the temperature fell to 33·0°—wind, also N. The minimum on the grass was 26·9°, also on the 21st.

The rainfall amounted to 3·558 inches, distributed over 17 days. The average rainfall for May in the twenty-five years, 1865–89, inclusive, was 2·030 inches, and the average number of rainy days was 15·4. The rainfall and the rainy days, therefore, were much above the average. More than one-third of the rainfall (1·330 inches) fell on one day—the 15th. In 1886 the rainfall in May was very large—5·472 inches on 21 days; in 1869 also 5·414 inches fell on 19 days. On the other hand, in 1871, only ·378 inch was measured on 9 days; in 1876 only ·798 inch fell on 6 days; in 1887 only ·882 inch on 10 days; and in 1888 only ·978 inch on 11 days. In 1890, 2·438 inches fell on 17 days. In 1891 May was the first month in which the rainfall exceeded the average. It amounted to 2·792 inches on 17 days. In 1892 the large amount of 4·177 inches fell on 19 days. In 1893, the fall was 1·666 inches on 10 days.

A solar halo was seen on the 6th. High winds were noted on as many as 11 days, attaining the force of a gale on the 16th only. Thunder was heard on the 15th, 29th, and 30th. Hail fell on the 7th, 20th, and 28th. Snow and sleet were seen on the 20th. The atmosphere was foggy on the 16th, 17th, and 23rd.

During the month the thermometer did not fall below 32° in the screen, but it indicated frost on the grass on the nights of the 21st, 22nd, 23rd, and 30th. The mean minimal temperature on the grass was 37·6°, compared with 45·6° in May, 1893, 41·3° in 1892, 37·7° in 1891, 42·2° in 1890, 42·4° in 1889, 37·5 in 1888, and 37·9° in 1887.

The period ended Saturday, the 5th, was changeable, rather cold, and cloudy. A complete reversal of the wind directions prevalent during the three preceding weeks occurred, N. and N.W. winds taking the place of the S.S.E. winds previously experienced. At times the barometer was very high off the W. and S.W. of Ireland, while a large area of low pressure hung over the Norwegian Sea, whence secondary depressions passed southeastwards across Great Britain and the North Sea. Hence arose the strong and squally N. and N.W. winds of the period and the cold showers which accompanied them. In the rear of a small secondary depression, which travelled southwards and was found over Devon and Cornwall on Monday morning, April 30, the barometer rose fast, reaching 30·58 inches at Belmullet and 30·55 inches at Parsonstown and Valentia Island at 8 a.m. of Tuesday, May 1. The weather subsequently again became unsettled, and on Friday morning snow and sleet fell heavily over Scotland in connection with a deep depression lying between that country and the S.W. of Norway. At 8 a.m. of the day named the barometer read only 29·12 inches at the Norwegian station, Skudesnæs. On Saturday a new depression advanced upon our N.W. coasts, causing much cloud, with a backing of the wind to S.W. In Dublin the barometer ranged between 30·491 inches at 9 a.m. of Tuesday (wind, N.) and 29·722 inches at 9 p.m. of Saturday (wind, S.W.) The thermometers in the screen rose to 57·8 on Thursday and fell to 41·3° on Tuesday. The rainfall was ·111 inch on three days, ·070 inch being registered on Wednesday. The prevalent winds were N. and N.W.

The weather remained in an unsettled, showery, squally, chilly condition throughout the week ended Saturday, the 12th. In the British Islands the distribution of atmospheric pressure was of the cyclonic type from beginning to end of the period; but well-marked anticyclones were noticed over France on Tuesday and over the Baltic and Scandinavia on and after Thursday. The deepest of the depressions was found off the North of Ireland on Thursday morning, when the barometer read only 29·21 inches at Malin Head. On Friday a shallow secondary depression crossed Ireland, where it caused rain and a circulation of light but very variable winds—in Dublin on the morning of this day the wind shifted to E.; it then backed to N. and finally to N.W. with a clearing sky and fast-falling temperature. Rain fell in the form of heavy showers in all parts of the kingdom, although the downpour did not reach the neighbourhood of London until Wednesday. Hail fell in several places—in Dublin on Monday—and thunder occurred at Aberdeen on Sunday, at Spurn Head on Monday and Thursday. In Dublin the mean height of the barometer was 29·781 inches; the minimal reading was 29·543 inches at 9 p.m. of Wednesday (wind. S.W.) and at 9 a.m. of Thursday (wind, W. by S.), the maximal reading was 30·225 inches, at 11 p.m. of Saturday (wind, N.W.). The corrected mean temperature was 50·3°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 50·1°. The thermometers in the screen fell to 40·4° on Saturday, having risen to 58·6° on Wednesday. The rainfall was ·336 inch on six days, ·158 inch being registered on Monday. The prevailing winds were W. and N.W.

The earlier part of the week ended Saturday, the 19th, was remarkable for the severity and persistence of a rainstorm which visited Wales, the east coast of Ireland, and to a less extent the east coast of Scotland. On the Continent and over the greater part of southern and eastern England the weather was comparatively fine, bright, and warm at the time of this rainstorm. On and after Thursday dry weather prevailed generally, with N.E. winds. Rain fell again on Saturday night. The inclement weather of the first few days was brought about by the advance over Ireland from the westward of a shallow depression on Sunday, on which day rain fell to the amount of ·50 inch at Belmullet, ·52 inch in Dublin, ·76 inch at Glasnevin Botanic Gardens, ·84 inch in the Phœnix Park, and ·61 inch at Donaghadee. At 8 a.m. of Monday the centre of this depression lay over the S.E. counties, and a complete cyclonic circulation of winds was reported from the Irish stations—N.E. at Malin Head, N. at Belmullet, N.N.W. at Valentia. W.N.W. at Roche's Point, S.S.E. in Dublin, and S.E. at Donaghadee. On this day (Whitsun-Monday) the weather held up in Dublin, but large quantities of rain fell in Wales—1·07 inches at Pembroke and 1·15 inches at Holyhead. The downpour extended to the east coasts of Ireland and Scotland later, the measurements on Wednesday morning being ·46 inch at Aberdeen, ·73 inch at Nairn, ·78 at Wick, 1·33 inches in Dublin, 1·38 inches at Glasnevin, and 1·46 inches in the Phœnix Park. Thunder and hail occurred at Valentia on Wednesday. At this time a large anticyclone was forming in the N. and repelling the depression southwards, with the result that on Thursday the rain ceased, and until almost the end of the week fine and dry but cold weather was established throughout Great Britain and Ireland. Snow fell in Scotland on Saturday. A downpour of rain often occurs in the middle of May, and—as on this occasion—is induced by the chilling of a warm, moist, southerly air-current by a cold polar current encroaching upon its left border. In Dublin the mean height of the barometer was 30·053 inches, pressure varying from 29·740 inches, at 9 a.m. of Monday (wind, S.S.E.) to 30·332 inches, at 9 a.m. of Saturday (wind N.E.). The corrected mean temperature was 49·7°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 49·3°. On Sunday the screened thermometers fell to 41·0°, on Monday they rose to 57·8°. The rainfall was 2·617 inches on six days, the maximal daily fall was 1·330 inches on Tuesday. The rainfall lasted for about 63 hours, but not continuously. The prevailing winds were S.S.E. at first, afterwards E.N.E.

The week ended Saturday, the 26th, will be memorable for its exceeding coldness and for the destructive frosts which occurred during its first three nights. At the beginning showers of hail, soft hail (Graupel), and sleet or snow, fell in many places and snow lay on the higher summits of the Dublin and Wicklow mountains. Generally speaking, however, the weather was very dry and chiefly bright, except in the east and south-east of England, where a dull, cloudy period with cold rain or passing showers prevailed throughout Tuesday and Wednesday. Depressions over Italy and in the Mediterranean Basin caused heavy rainfalls in the S. of France—at Lyons 3·65 inches fell in the seven days ending with 8 a.m. of Saturday. In Ireland and the centre of Great Britain the distribution of atmospheric pressure was for the most part anticyclonic—at 8 a.m. of Thursday the barometer read as high as 30·51 inches at Shields. At both the beginning and the close of the week, however, depressions were found over the North Sea and southern France. Hence the fresh to strong polar winds, which caused the low temperatures of the period. On Sunday night, the thermometer in the screen fell to 33° at Nairn, Aberdeen, and Dublin 32°; at Wick, Leith, and Shields, 31°; at Oxford, 30°; at Parsonstown, 29°; at Stornoway, York and Cambridge, and 28° at Loughborough. On Monday night, the minima were 28° at Wick, and 26° at Nairn and Loughborough. Much damage was done to vegetation by this untimely and unseasonable severity of frost. In Dublin the mean temperature on the grass during the week was only 31·4°, and on Monday a reading of 26·9° was recorded. The mean height of the barometer was 30·195 inches, pressure rising to 30·459 inches at 9 a.m. of Thursday (wind, E.N.E.) and falling to 29·988 inches at 3 p.m. of Saturday (wind, N.N.W.). The corrected mean temperature was 46·2°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 48·3°. On Monday the screened thermometers fell to 33·0°, on Friday they rose to 64·5°. This latter reading was the first maximum above 60° which had been recorded in this month of May. The prevalent winds were N. and N.N.E. There was no measurable rainfall. The mean temperature—46·2°—was 2·4° below that of the last week in March, 1894 (48·6°), and 4·0° below that of the week ending May 5, 1894—viz., 50·2°.

Throughout the closing period of the month—from Sunday, the 27th, to Tuesday, the 31st, inclusive—the weather remained unsettled and in a cold, showery condition. An irregularly-shaped depression, with several minima within its area, moved slowly westwards, and finally north-westwards, from North Germany across the British Islands. As this system approached, copious rains fell in the east of Great Britain, but particularly in the extreme south-east of England. At the North Foreland the rainfall for the 48 hours ending with 8 a.m. of Monday, the 28th, was no less than 2·57 inches. At the Helder, in Holland, the corresponding measurement was still greater—namely, 3·08 inches. Very sharp nights were succeeded by showery days. Hail fell in many places, and thunder and lightning occurred on the 28th and three following days—the storms of the 30th and 31st being especially severe in several places both in Ireland and in England. In Dublin drenching showers of rain and hail fell on the afternoon of the 28th, and thunder was heard in the vicinity of the city. On the 29th, also, thunder and lightning occurred to the north-east of Dublin, where thunder was again heard on the 30th.

The rainfall in Dublin during the five months ending May 31st amounted to 12·709 inches on 90 days, compared with 7·908 inches on 66 days in 1893, 10·099 inches on 80 days in 1892, only 5·995 inches on 63 days in 1891, 11·483 inches on 76 days in 1890, 10·476 inches on 91 days in 1889, 9·068 inches on 69 days in 1888, 6·489 inches on 62 days in 1887, and a twenty-five years' average of 10·496 inches on 81·6 days.

It may be remembered that on Saturday, May 28th, 1892, 2·056 inches of rain were measured at this station, 1·900 inches having fallen within 6 hours, or at the rate of 7·6 inches in 24 hours. No such measurement had been recorded in Dublin since October 27, 1880, when 2·736 inches of rain fell. May 28, 1892, was only the third occasion within the past twenty-nine years on which the rainfall exceeded 2 inches within 24 hours in Dublin. On May 15th, in the present year, the rainfall was 1·330 inches at this station, 1·460 inches at the Ordnance Survey, Phœnix Park, and 1·380 inches at the Botanic Gardens, Glasnevin.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in May, 1894, was 8·240 inches, distributed ever 15 days. Of this quantity ·900 inch fell on the 13th, and ·710 inch on the 16th. The total fall since January 1st, 1894, equals 15·696 inches on 85 days, compared with 9·565 inches on 65 days in 1893.

At Cloneevin, Killiney, Co. Dublin, the rainfall in May was 3·47 inches on 17 days, compared with a nine years' average of 2·343 inches on 15·0 days. The total fall since January 1 at this station has been 12·56 inches on 91 days. The maximal fall on any one day in May was 1·21 inches on the 15th. In 1893 only 1·12 inches fell on 10 days, but in 1892 the fall was 4·68 inches on 17 days.

PERISCOPE.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY.

TEN years have elapsed since the Medical Sickness, Annuity, and Life Assurance Society was started at a meeting summoned at Liverpool by its present Chairman. In March, 1884, when the Society commenced operations, few doubted that such an organisation of medical men was greatly needed, but the experience of similar societies was not very encouraging, and many who fully realised the benefits which a mutual sickness assurance scheme might confer upon the profession had, nevertheless, grave doubts whether any such plan could be satisfactorily worked out. Time has shown that the Society was well planned, and the experience of ten years has removed all doubt of its financial stability. From the first it was a success, and in a few months after its foundation was giving valuable assistance to many medical men who were suffering from accident or disease. As the advantages it offers have become more widely recognised the Society has grown, and year by year has paid an ever-increasing amount to those of its members who needed its aid. In the year ending June, 1893, £3,327 was paid in this way, and in the year now closing the sickness claim account will be more than a thousand pounds in excess of the amount paid in the previous year. Large as the amount is, it is well under the amount provided for in the tables, and every year the Society's accounts have shown satisfactory and increasing reserves. The low rate at which the management expenses have been kept has considerably added to the reserves. By the rules 10 per cent. of the premiums are applicable to management charges, but hitherto less than half this amount has been actually spent. The bulk of the sick claims arise from ordinary illnesses, which incapacitate the members for short periods only, but many of them are of quite a different kind, and cause the Society to continue the weekly sick pay for many months, sometimes for years. There are at present on the books nine chronic cases in all of which there is little hope that the claim will cease before the death of the member. Of these, two are cases of mania, one of them being the result of an accidental injury to the head, and in the others the members are disabled by some form of paralysis, neuritis, phthisis, acute diabetes, or angina pectoris. In all these cases the members were in good health but a few years ago; now they or their friends have reason to be thankful that they had sufficient forethought to provide against evils, seemingly remote, but which, as medical men at least are well aware, all men are liable to. A large proportion of the smaller claims arise from bronchial affections, and the influenza caused a very great increase in the number of these. Since January 1st this year over forty members have been incapacitated by influenza for short periods, but 1894 has, so far, been principally noticeable for its accident claims, which have been both numerous and severe, and it is quite certain that the accounts to be issued in June next will show that the Medical Sickness, Annuity, and Life Assurance Society in its tenth year of work has more than ever justified the hopes of its founders that it would prove to be a valuable help to many members of the medical profession. Forms and particulars may be had of Mr. F. Addiscot, 33 Chancery-lane, London.

STATISTICS OF ILLEGITIMACY.

NOT to know *The Modern Review* argues ourselves unknown, we fear; but we confess we were unacquainted with this very "advanced" periodical until we received No. 4, Vol. III., containing a bellicose article by "Lady Cook, *née* Tennessee C. Claflin," on "Natural Children and Unnatural Fathers." The paper shows considerable research into a somewhat unsavoury subject, and supplies some valuable statistics of illegitimacy. In England (including, we presume, Wales), "from 1841, when the first analysis of births was recorded in this country, to 1860, the proportion per cent. of illegitimate births to the gross number registered was never lower than 6·37 nor higher than 7." In London and other English towns the low rate of illegitimacy means a high rate of prostitution; on the Continent it is not so. In comparison with Continental capitals London shows the lowest percentage of illegitimacy—in 1845, 3·7; Vienna the highest—in 1851, 51·7. The rate in Lemberg was (in 1851) 51; in Prague, 46·7; in Stockholm (1831–5), 40·7; Milan (1851), 34: Paris (1858), 26·35; Madrid (1859), 21·8; Turin (1838), 18·91; Petersburg (1828–9), 18·8; Berlin (1840), 14·95. In England there are fewer illegitimate births in the towns than in the country; on the Continent the reverse obtains. Education and prudence do not seem to favour legitimacy. "Illegitimacy is far higher in Scotland than in England." "And in Cumberland, Westmoreland, Hereford, and the East and North Ridings of Yorkshire the standards of education and prudence are relatively very high, so also is the rate of illegitimacy. Whereas in Monmouthshire, Cornwall, Lancashire, and Staffordshire, marriages are early, education is low, but illegitimacy is also low." The percentage of illegitimate births in Cumberland in 1859 was 11·4; in Cornwall, 5·8. In general, "there is less disproportion between the sexes of the illegitimate than of the legitimate, either because natural unions operate somehow more favourably in equalising the sexes, or because—as a Prussian statist asserts—the fruit of a first pregnancy is oftener female than male." "In 1888 the illegitimate births registered in England were 4·6 of the total births; from 1878 to 1887 they averaged 4·8; from 1841 to 1859 they ranged from 6·3 to 7 per cent.

The rate, therefore, is steadily decreasing; but so is the legitimate rate. In Ireland, however, for 1888, the illegitimate rate was only 2·9 per cent. In educated and prosperous Ulster it was 4·4; in ignorant and poverty-stricken Connaught, 0·7. But then the marriage rate for Ireland was only 4·2 per 1,000 of the population, against 14·1 in England; and in the same year 80 per cent. of the Irish emigrants were between 15 and 35 years of age—the period most productive of illegitimacy as well as of marriage."

LA MÉDECINE INFANTILE.

We have received the first number of a new monthly periodical, published in Paris, devoted to the diseases of children. Each number will include original papers, analyses of communications contributed to other journals on the special subject, and a section of "Varia"—information likely to interest physicians who make children's diseases a specialty. The list of contributors includes practitioners of almost every country in Europe, and some in America—the majority naturally being French. There are 64 pages in this first issue. The second paper, profusely illustrated and thoroughly practical, is contributed by Dr. Bourneville, of the Bicêtre, on the treatment of idiotic children. It deserves the attention of all physicians engaged in this most discouraging line of practice.

FATAL INJECTION OF COCAÏN.

La Presse Médicale reports a case brought before the Société de Chirurgie by M. Reclus, in which immediate death followed an urethral injection of cocaïn. A man, aged sixty-two, suffered from prostatic retention of urine. Hypogastric puncture was performed, and on the following day renewed attempts to pass a catheter were unsuccessfully made. As a preliminary to a final effort before resorting to a more serious operation, the surgeon injected into the urethra *twenty grams* of a 5 *per cent.* solution of cocaïn. As twenty centigrams of a 2 per cent. solution is a more than full dose, the Society was not surprised to hear that the patient of M. Reclus' *confrère* died on the spot.

PENSION LITERATURE.

The Journal of the American Medical Association quotes from the Washington *Capital* some of the affidavits and reports of the Pension Bureau. This reply is attributed to a claimant:—"My age is 70; I can not say precisely when and where I contracted senile debility. It has come on quite gradually. I seemed free from it at my birth; yet if I had not been born so far back as I was, I am sure I would not be suffering with it so seriously as now. The most eminent authorities are agreed that old age is of a permanent character, and I begin to feel certain that my chances of becoming younger are exceedingly slim. In my case senile debility is not due to vicious habits; yet I have a habit of getting older each day. I have been infirm for the last ten years." The following are samples of examiners' reports on affidavit:—"We find dulness in this man's heart and the general symptoms that the book of instructions calls for." "In the center was also seen a large red mass as large as a small hen's egg, or rather a small egg, be the hen herself of dimensions stately or otherwise." "I find a scar on this man's foot at the junction of the sole with the upper." "The claimant alleges loss of memory, but as we could not take it out and examine it we have nothing to say, only his statement, which we rate nil." "Claimant can't read without glasses very much. He never could much. He never learned."

M'GILL UNIVERSITY.

DURING the Session 1893–94, 350 students were registered in the Medical Faculty of M'Gill University, of whom the largest number (135) came from Quebec, and 193 from other provinces of British North America. The United States supplied 19, the West Indies 3. Fifty-five qualified for the degree of M.D., C.M.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Loretin.

THIS new competitor with iodoform is an iodised sulphonic acid derived from quinoline. The usual advantages are claimed for it that it is efficient, harmless, and applicable in a variety of ways. It is a white powder, slightly gritty, inodorous, and only sparingly soluble in water (3 in 1,000). Professor Schinzinger, of Freiburg, has reported favourably upon it, and concludes:—(1) The action of loretin upon the process of granulation and the course of healing must be considered a favourable one, and at any rate surpasses iodoform in this respect. (2) Toxic symptoms, and general disturbances of the system such as the author had previously experienced in the employment of iodoform and described in his pamphlet "On Iodoform Treatment," published in 1883, in no case accompanied the treatment of wounds with loretin. (3) The urine investigations undertaken by Dr. Ammelburg showed that loretin caused no renal irritation, and that no albumen, blood, sugar or iodine appeared in the urine of the patients. (4) The antiseptic action of loretin is not accompanied by any inflammatory condition in the neighbourhood of the wound; on the contrary any eczema previously present is quickly dried up. (5) Loretin and its salts are not only completely odourless, but also quickly remove the offensive smell in purulent discharges and decomposing effluvia from ulcers of the leg. Messrs. Burroughs and Wellcome import this new drug.

THE DUBLIN JOURNAL
OF
MEDICAL SCIENCE.

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Thyroid Gland "Tabloids."

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THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

AUGUST 1, 1894.

PART I.

ORIGINAL COMMUNICATIONS.

◆

ART. V.—*Address on Public Medicine.*[a] By SIR CHARLES A. CAMERON, F.R.C.S.I., &c.

IT has been said humourously, yet not without a touch of sarcasm, that the physicians desire for their patients great longevity and frequent illness. Some years ago a writer in the *Scotsman* objected to the appointment, as Medical Officers of Health, of medical men engaged in practice, on the ground that "no sane body of men can bring themselves to believe that medical practitioners, whose livelihood depends upon sickness, are likely to exert themselves in exterminating it." To such an audience as that which I have the honour of addressing, no arguments or proofs are necessary to refute this writer's assertion. Those of us who devote ourselves solely to curative medicine are as anxious as those who practice only preventive medicine to prolong human life and avert disease. The desire to discover and eradicate the causes of disease, so as to convert man almost into a race of terrestrial immortals, has for centuries been characteristic of the professors of medicine. Even in our own time we witness the revival of the old idea of the *elixir vitæ* in the testicular juice of Brown-Séquard and in Malinconico's search for the bacillus of senility.[b] Are there not enthusiasts amongst us who, grasping the conception of Weismann,[c] that there are somatic unicellular organisms endowed with the potentiality of everlasting life, believe in the possibility of conferring upon the multicellular organism—man—the immortality of the unicellular organisms which form portions of every living being.

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[a] Delivered before the British Medical Association at Bristol, August 3, 1894.

[b] Trattato sulla Possibilitate della Prolongazione illimitata della Vita uomana.

[c] Weismann's Essays. Translated by E. B. Poulton, S. Schönland, and B. E. Shipley. Clarendon Press. Oxford, 1889.

But leaving this region of speculation, and dealing only with solid facts, we may claim that medical men stand pre-eminent amongst those who devise means for prolonging life and lessening sickness. They were the first to show that pure water was indispensable to health, that the efficient drainage of houses and of towns was a prime requisite to the maintenance of the health of communities, that overcrowding spreads disease if it did not develop it, that the high mortality associated with many industrial occupations might be lessened by the adoption of certain precautions. The lives saved by the adoption of Jenner's sublime discovery of vaccination amount to millions. Why is bacteriology so eagerly cultivated by thousands of medical men, and by many of them with no view to pecuniary reward? Partly, no doubt, for the desire of enlarging the boundaries of the science of biology, but chiefly as a means of counteracting disease. Prophylaxis wholly, and ætiology chiefly, are studied for the purposes of preventing disease, and consequently of diminishing the employment of the medical practitioner. No doubt some work for medical men is afforded by the appointment, in recent times, of officers of health; but this kind of work engages the time of but a very limited number of the profession.

So important do medical men regard Preventive Medicine that they have constituted special diplomas for proficiency in that department, and many who hold them have no intention of becoming medical officers of health.

Plato, in his "Republic," shows a high appreciation of the importance of Public Hygiene and State Medicine. The government of a community was, in his opinion, incomplete unless a state physician took an active part in it.

In the government of modern communities the medical man plays, even from a public health point of view, a very subordinate part in these countries, at least. When they are appointed on public boards—which is rarely the case—they usually occupy the lower positions. No medical man has a place in the Treasury, the Home Office, the Colonial Office, the Council for India, the Board of Trade, or the Charity Commission. He is never made even a

Master in Lunacy. The only medical man who occupies a position which gives him a direct share in the government of any great department of the State is Sir Walter Foster, Parliamentary Secretary to the Local Government Board. There are upwards of 250 Privy Councillors in Great Britain and Ireland, but only two of them have medical qualifications. One of these is Lord Playfair, who has not won any of his well-deserved honours in his capacity as a doctor of medicine; the other is Professor Huxley. In Germany medical men are constantly created Privy Councillors, and the government of that Empire is largely in the hands of those who possess the highly-prized titles of professor and doctor. The Prime Minster of Hungary is Dr. Alexander Wekerle. In Ireland medical men seem to have a better chance of attaining to the higher posts in the public departments. One of the five members of the Local Government Board must be a medical man. Two of the Commissioners of Control of Lunatic Asylums are physicians, and they constitute the inspectors of those institutions. The Registrar-General was once a practising physician.

As the present tendency in the social world is the upheaval of the lower strata of society towards its " upper crust," as the working man has become a senator, and mechanics are being metamorphosed into justices of the peace, we may hope soon to find some of the members of our profession following in the wake of Sir Walter Foster, and taking high places in the executive government of the country. Hitherto we have only been permitted to suggest measures for the promotion of the public health: it is time that we should have a more direct influence in sanitary legislation and in the administration of the sanitary laws. There are many medical men eminently fitted by their culture, experience, and ability to hold the office of Minister of Public Health—aye, even with a seat in the Cabinet!

WHY IS LIFE IN TOWNS SHORTER THAN IN THE COUNTRY?

In 1893 the death rate in England and Wales was 19·17 per 1,000 persons living. In the 33 largest towns the rate was 21·57. In England and Wales, less the 33 towns, the rate was 17·9. The ages of the people in the towns are more favourable as regards mean expectation of life, and the proportion of females—who have in the country at large a lower death rate than males—is greater in the towns. Corrected for age and sex distribution the death rate in the 33 towns was 23·32, and in the rest of the country

17·62. Thus, the mortality rate in the towns was 5·7 per 1,000 in excess of that in the rest of the country. The difference between the rural rate and that in some of the towns was appalling. For example, the difference, as regards Liverpool, amounted to no less than 13·17 per 1,000. In that city there died, in 1893, two persons for every death in equal population in many parts of England. For example, in the outer ring of London, population 1,543,296, the death rate in 1893 was only 15·4.

Why has one British town twice as high a mortality as another, and why is the average duration of life so much greater in rural districts than in the towns? These are problems of momentous import, the solution of which should be the aim of the sanitarian. The causes are, no doubt, highly complex, and many of them are local. Some of them are easily discoverable—such as over-crowded tenements, ill-ventilated houses, defective sanitary accommodation and drainage, accumulations of filth, ill-kept slaughter-houses and dairy-yards, noxious effluvia from factories and workshops, and imperfect combustion of fuel. The close approximation of persons to each other in towns favours the spread of infective diseases. But with all our knowledge of these causes of high death rates we still are at a loss to account for great differences between towns which appear to be placed under almost identical conditions as regards their salubrity.

Amongst the poor in all towns birth and death rates stand highest. Their greater fecundity and high marriage rates compensate for their enormous mortality. The poorer a man is the more likely is he to marry. It is a remarkable but undeniable fact that a man's desire for matrimony is in the inverse proportion to his ability to maintain a family.

In the City of Dublin the birth rate in 1893 was 32 per 1,000 of the population, and the death rate was 29·1. In the townships which surround the city, and in which the proportion of the poorer classes is small, the birth rate was 18·7, and the death rate 21.

In Dublin, in 1893, 15,579 persons were, together with their families, classified as "professional and independent." Their general death rate was 21·6; their zymotic death rate 1·3. 81,469 persons belong to the middle class; their death rate was 20·3, and their zymotic death rate 2·7. There are 83,472 labourers, hawkers, porters, &c., and their families; their death rate was 32·1, and their zymotic death rate 4·4.

The death rate of children under 5 years old in those classes was as follows:—Independent and professional, 19·5 per 1,000; middle class, 43·4; hawkers, porters, labourers, &c., 104.

These figures show the appalling mortality of the children of the poor. It is the high mortality of infants which chiefly raises the urban death rates. If the deaths of children under 5 years old were excluded there would only be a difference of about 2 per 1,000 between the town and country death rates.

A large proportion of the lower classes in the towns is underfed, insufficiently clothed, and badly lodged. These unfavourable conditions tell most severely upon the very young, amongst whom I have shown death's harvests are so abundant. It is not so much the infective diseases which thin the ranks of the toilers of the great towns—it is constitutional maladies which mow them down. The means for lessening the excessive mortality of the very poor do not lie altogether in the domain of Public Medicine. They must also be worked out by the political economist, aided by those philanthropists whose pecuniary resources enable them to gratify their benevolent instincts. Just in proportion as the people are well fed, clad, and lodged, will they, by reason of their consequent higher vitality, be able to resist the assaults of both constitutional and infective diseases.

COMPARATIVE POVERTY OF TOWNS IN RELATION TO DEATH RATES.

As higher death rates prevail amongst the poor than obtain in the case of the well-to-do classes, an undue proportion of very poor people in a town must necessarily cause a higher death rate than where the poor are comparatively few. This will be the case even where the general hygienic conditions of both towns are much alike.

Mr. Sergeant, in a paper published in the Journal of the Statistical Society for June, 1864, argues that in estimating the death rate of Birmingham, as compared with that of London, an allowance of 1·5 per 1.000 should be made in favour of the former city, on account of the comparatively small proportion of the affluent classes which inhabit it.

The recorded death rates of towns are corrected for age and sex distribution. The death rates of persons arranged in groups according to ages in England and Wales are determined. It is known that females enjoy a longer period of life than males. If the proportion of persons whose mean expectation of life is greatest in a town exceeds that in the county at large, a correction is made for this condition of things. So also if females are, relatively to males, more numerous in a town than in all England and Wales, a correction is also made for that state of the population. The recorded deaths for the English towns are, with few exceptions, below the rates when corrected for age and sex distribution. If a similar correction could be made in cases where the poor classes (amongst whom everywhere the death rate is highest) are in excess it would be most desirable. I have endeavoured to find in the Census Reports of 1891 materials for such a correction, but the results are disappointing.

TOWNS	Percentage of Domestic Servants		TOWNS	Percentage of Domestic Servants	
	To Heads of Families	To Total Population		To Heads of Families	To Total Population
Aston Manor	11	2·2	Newcastle-on-Tyne	23	4·7
Barrow-in-Furness	22	4·0	Newport	23	4·4
Bath	49	11·4	Northampton	19	3·8
Birkenhead	30	6·0	Norwich	20	4·5
Birmingham	14	2·9	Nottingham	16	3·4
Blackburn	10	2·0	Oldham	9	1·8
Bolton	10	2·0	Plymouth	22	5·1
Bradford	12	2·6	Portsmouth	21	4·5
Brighton	41	9·0	Preston	12	2·4
Bristol	26	5·7	Reading	28	5·6
Burnley	11	2·2	Rochdale	10	2·2
Bury	11	2·3	St. Helens	16	2·8
Cardiff	20	3·9	Salford	14	2·8
Coventry	14	3·0	Sheffield	17	3·6
Croydon	44	8.8	South Shields	17	3·5
Derby	19	3·9	Southampton	23	5·2
Devonport	15	3·4	Stockport	11	2·5
Gateshead	14	2·8	Sunderland	17	3·7
Grimsby	19	4·0	Swansea	21	4·3
Halifax	11	2.4	Tottenham	16	3·3
Hanley	14	2·7	Walsall	17	3·2
Hastings	59	11·7	Warrington	14	2·6
Huddersfield	14	3·1	West Bromwich	13	2·5
Ipswich	29	6·5	West Ham	14	2·8
Kingston-upon-Hull	18	4·0	Wigan	14	2·6
Leeds	13	2·8	Willesden	31	6·5
Leyton	18	3·7	Wolverhampton	20	3·8
Leicester	14	3·0	York	29	5·9
Liverpool	19	3·9	Ystradyfodwg	16	2·9
London	27	6·1			
Manchester	15	3·1	62 Towns (including London)	21	4·6
Merthyr Tydvil	19	3·7			
Middlesboro'	17	3·1	61 Provincial Towns	18	3·7

It may be considered that the comparative poverty of towns might be to some extent determined by ascertaining the proportion of the population who were domestic servants.

On the whole, we find that the towns where the domestic servants are very numerous the death rates are low. Croydon, for example, had the lowest death rate of the great towns in 1893—namely, 16·99 (corrected), and the highest proportion of domestics—namely, 8·8 per cent. of the population, or, in the ratio of 44 per cent. to the heads of families. Bath and Hastings[a] are the only two of the 62 largest towns which exceed Croydon as regards proportion of domestics. In Bath the domestic servants constitute 11·4 per cent. of the population, and 49 to every 100 heads of families; in Hastings, 11·11 per cent. of the population and 59 to every 100 heads of families. As a rule, in the towns where but a small proportion of the population are domestic servants death rates are high, and *vice versâ;* but there are some exceptions. In the 62 largest towns the average percentage of domestic servants is 4·6. The 10 great towns which had the highest death rates in 1893 have a mean percentage of 2·86, whilst in the 10 great towns with lowest death rates the percentage is 4·81.

The percentage of tenements which consist each of a single room might, one would suppose, afford an indication of the poverty of a town. I find, however, the most extraordinary differences in towns, salubrious and otherwise, as regards one-room tenements. In Plymouth, which is a fairly healthy town, 24·4 per cent. of the tenements consist of one room each, and 27 per cent. of two rooms. In Preston, which has nearly the highest death rate in England, there are only 5 per cent. of the tenements consisting of a single apartment. Devonport, a moderately healthy town, has the largest percentage of one-room tenements—namely, 25·2 Hanley has only 0·1 per cent. of these tenements. Thus, one-room dwellings are 252 times more numerous in Devonport than in Hanley. In London 18·4 per cent. of the dwellings are one-room tenements. Here I may mention that in the 62 largest towns there are, on the average, 12·5 per cent. of one-room tenements, or, excluding London, 3·8. In the provincial towns, with the exception of Liverpool (7·7 per cent.), all the high death-rate towns have very few one-room dwellings.

In Hanley the local authorities will not permit the erection of one-room dwellings. Although a manufacturing town—the principal in the potteries districts—and its industrial occupations admittedly unhealthy, its death rate in 1893 was only 20·2.

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[a] Birth rate in Bath, in 1893, 19·5; death rate, 18·5. Birth rate in Hastings, in 1893, 19·3; death rate, 14·27.

In the Scotch towns one-room houses, as they are termed there, are even mere common than in England. In 1873 Dr. Russell found that they constituted 32·8 per cent. of the total houses; but the proportion has been steadily diminishing since that year.

In Dublin I have estimated that one-third of the families live in single rooms.

Although I have shown that in many salubrious towns the one-room dwellings preponderate, very bad accounts of this kind of dwelling have been given by competent observers. Carnelly and Anderson have shown that the death rate from diarrhœa per 10,000 of the population was 19·6 in four or more room dwellings, 27·6 in three rooms, 39 in two rooms, and 59·8 in one-room dwellings. Kotosi, of Buda-Pesth, has, in an elaborate memoir, demonstrated the bad influence on health produced by living in one or two-room tenements. Dr. Russell, of Glasgow, stated that in 1885, whilst the general death rate of that city was 25, the rate amongst the occupants of one-room houses was 27, of two rooms 26, of three rooms 20, and of four rooms 18.

It is stated that in 1885 there were only 75,000 out of 1,315,000 of the population of Berlin living in single rooms, yet that they contributed nearly one-half of the deaths in that city.

The high death rate which characterises the denizens of single-room dwellings is largely the result of the miserable conditions of the people themselves, apart from the state of their dwellings. If they exchanged their one-room dwellings for four-room tenements, they would still have a high death rate by reason of their poverty and its concomitant evils, and, alas! I fear, from their intemperance.

Wherever one-room dwellings can be obtained the poorest, idlest, and most intemperate classes of the population will secure them; but no matter where they live their residences, unless under strict supervision, will be filthy, and suffer from insanitary evils. In towns, at least, the vitality of the people will, in a general way, be directly proportional to their means of procuring the necessaries and comforts of life.

TOWNS	Of each 1,000 Tenements the number consisting of				Of 100 Tenements the number consisting of			
	1 Room	2 Rooms	3 Rooms	4 Rooms	1 Room	2 Rooms	3 Rooms	4 Rooms
Aston Manor	12	20	231	166	3	5	53	39
Barrow-in-Furness	15	129	95	100	4	39	28	29
Bath	94	147	119	136	19	30	24	27
Birkenhead	53	77	60	198	14	20	15	51
Birmingham	14	43	369	156	2	7	64	27
Blackburn	3	24	16	596	1	4	3	92
Bolton	2	87	40	563	0·3	13	6	81
Bradford	25	185	308	196	3	26	44	27
Brighton	95	114	84	108	24	28	21	27
Bristol	89	153	130	123	18	31	26	25
Burnley	24	90	66	534	3	13	9	75
Bury	9	79	114	569	1	10	15	74
Cardiff	22	141	77	119	6	40	21	33
Coventry	8	123	135	214	2	26	28	44
Croydon	36	50	50	110	15	20	20	45
Derby	4	38	40	170	2	15	16	67
Devonport	252	295	167	90	31	27	21	11
Gateshead	102	370	231	153	12	43	27	18
Grimsby	8	33	27	248	3	10	9	78
Halifax	54	272	191	171	8	39	28	25
Hanley	1	34	34	263	0·3	10	10	80
Hastings	51	99	75	71	17	34	25	24
Huddersfield	50	206	269	185	7	29	38	26
Ipswich	18	53	28	156	7	21	11	61
Kingston-upon-Hull	24	87	120	341	4	15	21	60
Leeds	14	176	218	259	2	26	33	39
Leyton	27	39	103	156	8	12	32	48
Leicester	3	66	31	150	1	26	12	60
Liverpool	77	108	126	177	16	22	26	36
London	184	202	163	123	27	31	24	18
Manchester	15	97	52	390	3	18	9	70
Merthyr Tydvil	7	130	138	331	1	21	23	55
Middlesboro'	26	102	146	432	4	14	21	61
Newcastle-on-Tyne	132	304	208	146	17	38	26	19
Newport	21	143	89	99	6	41	25	28
Northampton	19	64	71	139	6	22	24	48
Norwich	21	79	85	155	6	23	25	46
Nottingham	9	35	130	146	3	11	40	46
Oldham	7	83	24	650	1	11	3	85
Plymouth	244	270	137	81	33	37	19	11
Portsmouth	40	75	60	102	14	27	22	37
Preston	5	27	53	374	1	6	12	81
Reading	11	33	42	103	6	18	22	54
Rochdale	18	213	102	397	3	29	14	54
St. Helens	9	87	72	427	2	15	12	71
Salford	23	104	89	390	4	19	7	70
Sheffield	6	67	239	248	1	12	43	44
South Shields	104	414	211	115	12	49	25	14
Southampton	62	91	67	125	18	26	19	37
Stockport	10	119	37	505	2	18	6	74
Sunderland	91	292	281	123	12	36	36	16
Swansea	27	131	78	262	5	27	15	53
Tottenham	53	76	117	132	14	20	31	35
Walsall	5	63	80	361	1	12	16	71
Warrington	7	81	32	316	2	19	7	72
West Bromwich	5	101	194	388	1	15	28	56
West Ham	53	97	193	211	10	17	35	38
Wigan	6	174	112	400	1	25	16	58
Willesden	108	165	184	117	19	29	32	20
Wolverhampton	3	89	86	341	1	17	17	65
York	28	98	69	258	6	22	15	57
Ystradyfodwg	9	142	134	122	2	35	33	30
62 Towns (including London)	125	201	200	267	16	25	25	34
61 Provincial Towns	38	117	139	242	7	22	26	45

BACK-TO-BACK HOUSES.

Dr. Tatham, lately Medical Officer of Health for Manchester, published some statistics which seemed to prove the insanitary character of houses which were built back-to-back without any intervening space. Dr. Bell, of Bradford, has also published statistics in reference to that town which appeared to show that the people who lived in those kind of houses enjoyed better health than those whose dwellings had through ventilation. I think the recent interesting investigations of Dr. Herbert Jones have decided this question in favour of Dr. Tatham's views. He has compared the two classes of houses in Ripley and Saltaire, where the social status and other conditions of the inmates were identical. In Saltaire the annual general death rate in a period of six years was 16·6, and the zymotic death-rate 1·08 in the through houses, whilst in the back-to-back houses the two rates were 21·1 and 1·7 respectively. The deaths from phthisis were in the ratio of 2·3 per 1,000 of the population of the through houses and 3·4 in the back-to-back houses. As these statistics apply to a population of more than 20,000, we may accept them as clearly proving the insanitary state of houses which have not a through ventilation. It is to be regretted that the local authorities still allow such houses to be built. In Dublin they could not be erected, there being a by-law directly prohibiting their construction.

THE HOUSING OF THE WORKING CLASSES ACT, 1890.

This important statute has greatly stimulated the local authorities in reference to the clearing of unhealthy areas and the erection of dwellings for artisans and labourers. As such operations entail great expense on the ratepayers, the money devoted to them should be judiciously expended. The demolition of insanitary dwellings under the provisions of this Act is a costly proceeding, for undoubtedly more than their market value has to be given in compensation for them. It seems to me that houses unfit for human habitation might be more frequently dealt with under the provisions of the Public Health Act, and consequently without cost to the public. In Dublin 2,700 houses have been detenanted and closed—about 1,000 of them never to be reopened—without any compensation to the owners. If a man has a house unfit for a human dwelling, why should he be compensated for its disuse? We prevent a butcher from disposing of the carcase of an animal unfit for the food of man, but we do not compensate him for his loss.

If a municipality be wealthy they could do no better work than the providing of good dwellings for artisans and labourers; but if their means are limited they should look only to the wants of the labouring and still poorer classes. In all towns there is a by no means inconsiderable proportion of the population who live from hand to mouth—who are often even in a state of semi-starvation. These unfortunates include old men and women, still capable of doing a little work if they can get it; hawkers, the lowest class of porters, street vendors, widows, with or without children; messengers, "sandwich-men," and other strugglers for existence. Then the mendicants, prostitutes of the lowest order, and the criminal classes, must live somewhere, and we can easily imagine what their abodes must be! It is in the dwellings of the very lowest classes that the seeds of infective disease are nursed as if in a hotbed. These places are pest spots, and any amelioration of their condition must be a gain to society at large. With, perhaps, the exception of the utterly disreputable persons, it is for these people that healthful dwellings should be provided at very moderate rents. It has been alleged that the providing of model tenements at rents of 3s. 6d. per week, and upwards, causes the vacation of tenements which must then be let at reduced rents to people poorer than the previous occupants. This may be the case, but certainly only to a limited extent. Artisans are a fairly independent class, and are well able to provide good dwellings for themselves; but the most dependent portion of the community ought to have the first claim on local authorities, and certainly upon the sympathy of men of the Lord Iveagh and Peabody type. The Corporation of Dublin have been able to provide two-room tenements, with separate sanitary accommodation of the most modern style, at 2s. per week, and without loss to the City Treasury.

I can present no more striking description of the deplorable state of the houses of the lower classes than that given by Dr. Hope, Medical Officer of Health for Liverpool, in the July number of *Public Health.* He says that 578 houses are about to be demolished. They consist each of three rooms, one over another and without any intermediate landing, so that the same atmosphere pervades the entire house. They are back to back and side to side, and their sanitary accommodation is outside and for common use. They have bulging walls, broken window sills, crumbling mortar, rotten woodwork, walls and ceiling stained by saturation with vapours of breath, and foul smelling. The death rate in the three streets of insanitary houses was 63·1, 67·0 and 71, respectively.

WATER IN RELATION TO DISEASE.

The disuse of town wells and the filtration of public water supplies have done much to lessen the urban mortality. The filtration of water practically commenced only close to the middle of this century, and it is within this period that the great reduction in the death rates of towns has taken place—a reduction not altogether due to improved water supplies, but, I believe, largely from that cause. The value of filtration through mere sand has until recently been underestimated, but the researches of chemists and bacteriologists, more especially those of Percy Frankland, have shown that filtration through sand and gravel can be made almost as perfect as through charcoal. It has been demonstrated that a fresh sand-filter acts merely mechanically and prevents the passage of the grosser particles; but a filter some time in use has its superficial layers permeated with a jelly-like mass of microbes which acts as the real filter. These microbes convert the nitrogen of the organic matter into nitrates, and they arrest the passage through the filters of other microbes. I believe that there are many persons in charge of filter beds who are not aware of these facts, who do not know that new filters let microbes pass freely through them, that the sand layer should not be more than 30 centimetres in thickness, and that the rate of flow of water through the sand should be uniformly 4 inches per hour. The Medical Officers of Health are not usually consulted about filtering beds, but it would be desirable that they should ascertain whether or not the new views with regard to them are known to the water-works officials.

Wolffhügel found that the 3,000 colonies per cubic centimetre in unfiltered Berlin water were reduced by filtration to 107, which, however, are 57 in excess of the number assigned by Koch to good water. In the Dublin pipewater the number does not exceed 25.

Dr. Percy Frankland states that sand particles, averaging 0·06 inch in diameter, allowed from 26 to 40 per cent. of bacteria to pass through; whilst sand grains, averaging 0·006 inch permitted 14 per cent. to pass through. When very fine sand (silver silt) 5 feet in depth was used, 95 per cent. were retained. Garden soil and peat are perfectly efficacious filtering materials, but the water passes too slowly through them. I cannot avoid here passing a eulogium upon the magnificent treatise of Dr. and Mrs. Percy Frankland on the micro-organisms in water which has just been published. Beside being a record of the admirable researches of the authors, it is a valuable epitome of the literature of this subject.

Professor Koch has expressed very strong views as regards the inferiority of surface drainage to subsoil water for potable purposes. He considers natural filtration through layers of soil as more efficacious in removing organisms than any system of sand filtration. The process in the former case is slow, and the amount of filtering material considerable. There is no doubt that the water of deep wells, though often excessively hard, and therefore not suitable for domestic purposes, generally contains the merest trace of organic matter, and is practically free from microbes.

The great importance of water filtration was painfully demonstrated during the last epidemic of cholera at Hamburg. The city of Altona, which is close to it, and Wandsbeck, virtually a suburb of Hamburg, derive their water supplies from the Elbe and a lake. F. Reiche, Resident Physician to the General Hospital, who has published a very elaborate account of the epidemic, states that there were 17,972 cases, and 7,610 deaths. In Altona and Wandsbeck there were few cases. Hamburg derived its water from the Elbe, above the town, and it was not filtered. Altona used filtered water taken from the river below Hamburg, and Wandsbeck's supply was taken from a lake and filtered. Analysis proved the pollution of the Hamburg water and the purity of the supplies to the two other towns. Here, surely, we have a strong proof of what Dr. Ernest Hart terms water-borne cholera. It is, however, remarkable that Koch was unable to detect a single cholera bacillus in this highly-polluted water. Another remarkable point in connection with this epidemic is, that the water used by Altona contained the sewage of Hamburg, the second largest town in Germany. Can there be a more wonderful proof of the purifying power of proper filtration?

At the same time one cannot help asking is there anything to be gained by tracing what has been termed the "pedigree" of water? It is stated that a better opinion as to the purity of water can be formed by knowledge of its sources than by the results of its analysis. It seems inconceivable than any amount of filtration could make river water pure that contained the sewage of an enormous town.

It must, however, be observed that Altona is situated on much higher ground than Hamburg, that it is not like the latter permeated with stagnant canals, and that it is a healthier town. It seems not unlikely that the deplorable insanitary condition of Hamburg was the principal cause of the ravages of cholera. The correspondant of the *Lancet* in the number of that journal for July 7th, 1894, describes the condition of the purlieus as almost indescribably bad. Official statistics showed that the deaths in the population were influenced by their incomes. The upper classes, though they drank the polluted water, suffered but little.

The fitness of a water for potable purposes is generally determined by its chemical, and rarely by its biological, examination. The chemists, as a rule, believe that their method is the surer one, whilst the bacteriologist considers his process as the only really reliable one. The chemical analysis is much more cheaply obtained than the bacteriological one, if the latter be thoroughly carried out; therefore the general public will continue to have water chemically, rather than biologically, examined. It is, however, clear that both methods are desirable, and I have no doubt that at no distant date the water analyst will be able to carry out both processes, as, indeed, a few of them now do.

We have not yet determined, in relation to chemical analysis, the line which divides a bad from a good water, nor do I believe that such a line can be drawn. One that contains very little organic matter may be dangerous to drink, whilst, on the contrary, water with a large amount of organic matter has been drunk with impunity for years. In the Eleventh Annual Report of the Local Government Board an account is given of the failure to detect pollution in water. ·05 gramme of typhoid dejection was added to a litre of pipe water, and half that quantity of the dejection to another litre of water. Both, together with unpolluted water, were analysed by distinguished chemists, who were aware of the nature of the articles submitted to them. In the unpolluted water the free ammonia was 0·0021, and the albuminoid ammonia 0·0075 grain per gallon, which quantities were raised to 0·0025 grain of free and 0·0095 grain of albuminoid ammonia in the least polluted water, and to 0·0027 grain of free and 0·0123 grain albuminoid ammonia in the more polluted water; thus, the addition of 0·5 gramme of typhoid dejection to a litre of water, or 1·7 grain per gallon, had almost no appreciable influence upon the composition of the water, which before and after pollution would be passed by the chemist as a good one. As only about 8 per cent. of typhoid dejection is solid matter, of which about 6 per cent. is soluble; the addition of 1 grain of typhoid excreta to a gallon of water would add only 0·06 grain of soluble matter to the liquid. It may be said, then, of what utility is water analysis if it passes as good a water to a gallon of which 1·7 grain of typhoid stool had been added? It is unfortunate that there is no accurate chemical method for determining the precise nature of the organic matter found. As a rule the larger the percentage of nitrogen contained in the organic matter the more likely is it to have been derived from an animal source. Analysis certainly shows the amount of organic matter present, and although such matter is usually innocuous it is sometimes the reverse. The greater the amount of organic matter, or rather of albuminoid matter, the greater the chance that it may include infective substance. When we have a water with a very small amount of nitrogenous organic matter, there is no likelihood that typhoid dejections will be present. Under the ordinary conditions affecting our water supplies it is improbable that typhoid stools would be mixed with them as was done in the experiments just quoted. They are thrown into water-closets, privies, ashpits, manure heaps, the soil, ditches, rivers, &c. From all these media they may find their way into rivers or wells, furnishing potable water, but with rare exceptions there must, under such circumstances, be large quantities of other kinds of organic matter associated with the typhoid excreta and carried with it into the water. In short, the passage of unmixed excreta into potable water must be a circumstance of rare occurrence. In the ordinary cases of pollution by typhoid or other dejecta, the analysis of water proves its unfitness for use.

Dr. R. Bruce Law, in a Report to the Local Government Board, states that Penrith has a water supply which chemical analysis shows to be pure, but which, he is satisfied, is liable to excremental pollution, likely to produce enteric fever and other maladies.

The number of micro-organisms in water is regarded by most bacteriologists as a measure of its purity, regardless of its chemical composition. For example, Professor Leeds, of the United States, condemned a water which, in every chemical respect, was much superior to another which he passed as good, because the former contained a very much larger number of organisms than the latter.

As minute doses of virulent poisons have no bad effect upon the animal economy, it is likely that very small numbers of pathogenic microbes or very small quantities of toxins and microzymes may also be impotent for evil. In the great centres of population it is not unlikely that the inhalation and swallowing of disease-producing micro-organisms is a common occurrence.* That they do not always produce disease is because the organism which takes in the micro-organism is strong enough to master the latter, or because a few individual microbes are unable to do much if any harm. Prof. Lancaster says—"One typhoid bacillus passing into or even reaching the intestines would not be able to hold its ground."

The epidemic of enteric fever in the Tees Valley in 1890 and 1891, investigated by Dr. Barry, of the Local Government Board, has been held to prove conclusively that this disease is propagated by water. On an area of 1,103 square miles, with a population of about half a million, 1,463 cases of the disease were reported. It was ascertained that 219,181 persons were supplied with the Tees water, whilst the remaining portion of the population drank water derived from other sources. Amongst the former, attacks of enteric fever were fifteen times more numerous than amongst the latter. Dr. Barry shows that the Tees is liable to extensive pollution, one town and about twenty villages discharging their sewage into it.

Dr. Barry's conclusions have, of course, been questioned by the water companies, for the water had been subjected to sand filtration; and Dr. Mitchell, of Castle Barnard, and Dr. Creighton, of Cambridge, have controverted them. Dr. G. H. Ganett, in a pamphlet on the water of the Severn, says of the Tees outbreak that it may have been caused by some accidental fouling of the water; but that the whole of the water of the Tees was infected by typhoid bacilli, derived from a very small amount of possible pollution at a point nearly twenty miles above where the water was removed for drinking, as suggested, is an idea that cannot be entertained.

The question as to the Tees Valley outbreak being really due to polluted river water came before the Commission appointed in January, 1892, to inquire into the quality and quantity of the water supplied to London. Mr. Wilson, who was examined as a witness, appeared to represent the Stockton and Middlesborough

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* Dr. W. D. Miller, of Berlin, discovered 31 different pathogenic organisms in the mouth, and Professor Leeds found, per cubic centimetre of his own saliva, six hours after taking food, 10,775 colonies of bacteria. Peroxide of hydrogen and solution of saccharin are excellent disinfective washes for the mouth.

Water Board. He pointed out that in a village of 162 houses no case of enteric fever had occurred during the outbreak, though the Tees water was used in all the houses; and, further, that before this village got a supply from the Tees it used to suffer greatly from the ravages of typhoid fever. Mr. Wilson challenged the accuracy of the statistics, which, he said, were got by three different methods—Compulsory notification, voluntary notification, and by replies to Dr. Barry's question. Mr. Wilson attributed the prevalence of typhoid in the district to general insanitary conditions.

This Water Commission sat a large number of times from May 16th, 1892, to June 30th, 1893. It comprised Lord Balfour of Burleigh (chairman), a geologist, a chemist, three engineers, and a medical man devoted to statistics—all eminent in their respective professions. They examined 92 witnesses. In their Report the Commission state that the evidence produced before them proved that the pollutions to which the rivers Thames and Lea are subjected are very numerous, and that filth is illegally and unnecessarily discharged into these rivers. They also state that the methods of filtration in use by the different water companies "differ enormously," and that some of them are quite inadequate.

With admitted extensive pollution and defective filtration the surprising thing is that the Commission report that the water as supplied to the consumer "is of a very high standard of excellence and purity." They do not believe that any danger exists of the spread of disease, provided, however, that the water is properly filtered.

The medical and statistical evidence submitted to the Commission proved that London had a comparatively low typhoid fever death rate, and that outbreaks of this disease, or even solitary cases, were not clearly attributable to the use of the London pipe-water. So far as my observation of the London tenement houses goes, it seems extraordinary how their inmates escape enteric fever if water be the usual vehicle of its poison. An intermittent water supply, with storage cisterns placed on the roofs of water-closets in small close yards, is a common state of things in thousands of tenement, and, indeed, in other kinds of, houses. There seems to be no evidence that the bacilli of typhoid fever find their way into these cisterns, notwithstanding that they are exposed to foul emanations and are often uncovered; there may be other diseases caused by the water in some of those exposed cisterns.

In many towns supplied with well-filtered water, complaints are made that it is occasionally impure. Dr. Victor Despeignes states that the water at Lyons, though filtered under good conditions, when it arrives at the taps contains so many bacilli as to constitute it a danger to health. Cisterns are the cause of much pollution of water, and therefore, if possible, they should not be used.

THE ORGANISMS IN SEWER AIR.

The results of recent investigations in reference to the composition of sewer air seem to show that it is superior, bacteriologically at least, to ordinary air. Some of the accounts of its purity are so roseate that one might naturally conclude that a sewer outfall would be an excellent health resort. Dr. John Billings, of the United States Army, goes so far as to doubt that there is conclusive evidence to prove that sewer gases have ever produced disease. Professor Koch found only 3 to 4 micro-organisms in 100 litres of the air of a Berlin sewer, whilst the atmosphere above the sewer teemed with them. Haldane detected only 20 microbes per 100 litres of air in a Bristol unventilated sewer. In a school in Dundee, Carnelly and Haldane found 1,510 bacteria and 10 moulds per 10 litres; whilst in a sewer in that town the number was less than 100 micro-organisms.

Mr. L. Parry Laws has recently made two investigations as to the number and kind of the organisms in the air of London sewers. He finds that they do not differ in nature from those in the atmosphere. They consist of moulds and micrococci only, whilst the sewage itself contains mostly bacilli.

As sewage when quite recent rarely has a bad odour, we can easily understand that in the case of well-constructed and constantly flushed sewers, the air in them would not differ from ordinary atmospheric air. It is the emanations from stagnant sewage in ill-kept sewers that are to be dreaded. In any case, be sewers well kept or badly kept, it seems the safer plan to prevent their gaseous contents from entering our houses. It is an old story that the persons who work in the sewers enjoy as good health as other workmen of the same class, but recent and accurate statistics show that this is not the case. The medical department of the Paris Bureau of Public Works has shown that there is an abnormally large amount of sickness amongst the workers in sewers, and that great precautions have to be observed in order to preserve their health.

In curious contrast to Koch, Carnelly, Haldane and Laws' observations, we have quite a sensational account of an evolution of pathogenic bacilli from New York sewers, given to us by Dr. Fischer of that city. He examined bacteriologically sewer air which had passed into private and tenement houses where cases of diphtheria had occurred, and detected virulent organisms in it. In forty examinations of moist sewer-air he detected, in twelve instances, pathogenic bacilli, of which some were Klebs-Löffler's diphtheria microbe, and one was the Bacillus typhosus.

Dr. J. Bruce Low considers that he has proved to demonstration that sewer air caused a great mortality from typhoid fever in the districts of Sheldon and East Thickley. During an epidemic of that disease in 1893 there were 224 cases and 41 deaths in a population of 10,000. Although some of the cases were caused by infected milk and exhalations from middens, the greater number were due to the entry of sewer gases into houses.

Dr. Davies, Medical Officer of Health for Plumstead, is disposed to blame the street sewer ventilators for the recent increase of diphtheria in London.

Alessi has shown that the gases of putrefaction rendered animals peculiarly liable to infection from doses of typhoid cultures, which had no effect upon the great majority of animals not exposed to those gases.[a] Sewer air might have a similar action.

THE VENTILATION OF SEWERS.

No sanitary subject has been so much debated of late as that relating to the ventilation of sewers and drains. The present system allows communication between the sewers and the atmosphere, for the purpose of preventing the air in the former from acquiring a greater tension than that of the latter, and also for the dilution of the sewer gases by fresh air. This system converts what were formerly sealed conduits of sewage into open sewers, but with this difference that the emanations from the sewers are evolved through openings 100 yards or so apart, and are, therefore, concentrated at a limited number of points. From a health point of view we may regard a perfectly open sewer as obviously less objectionable than one which is open at a limited number of points. It is contended that in unventilated sewers the gases generated by decomposition of organic matter force the weak traps on house drains and pass into the houses. From my own experiments on air pressure in the

[a] Centralblatt für Bacteriologie, B. XV., No. 7.

Dublin sewers, I have come to the conclusion that it is extremely slight when the weather is calm; if there is a strong breeze then the pressure increases because large volumes of air are blown into the sewers through the ventilating openings. Mr. Baldwin Latham—a great authority on sanitary engineering—and Professor Attfield say that large quantities of air entering a sewer displace equivalent amounts of foul air, which must escape somewhere.[a] Latham considers that too much stress is laid upon the subject of ventilation of sewers, and believes that it is only necessary to give the air sufficient vent to prevent pressure upon the traps of the houses.

The ventilating openings in the streets are generally objected to by those who live opposite to them, and undoubtedly from some of them malodorous effluvia are noticed and often complained of. The trite remark that it is better to have the sewer effluvia in the street than in the house is, of course, quite true; but the traps on drains ought to be strong enough to prevent the sewer air from entering the house. In every town there ought to be registered plumbers as sanitary officers, whose duty should be to see that the connections between the drains and sewers are properly made, and that the traps are sufficient and efficient. I have no doubt but that in most towns much soil pollution is the result of faulty house drains leaking their contents.

Bristol is, perhaps, the only one of the large towns in which the sewers remain unventilated. As they discharge their contents into a tidal river, and, therefore, are sealed for some hours daily, it might be supposed that the backing up of the sewage would cause pressure upon the air in the sewers. The medical officer and city surveyor are, however, quite satisfied to allow them to remain as they are, and deprecate every proposal to ventilate them into the street. As typhoid fever is the disease which is, as asserted, the most likely to be produced by sewer emanations, Bristol ought to have more than an average amount of the disease if the sewer ventilation theorists are correct. In 1892 I collected statistics which showed that the mean death rate from enteric fever in the period 1887–91, in 50 large British and Irish towns, was 21·3 per 100,000. In Bristol the rate was 12·6. The highest rate was in Belfast, namely, 53·6; the lowest in Plumstead, 7·3. Five towns had smaller rates than Bristol, and 44 had higher rates. If Bristol has made a mistake in not ventilating its sewers, it has not paid apparently any penalty, for in the period 1881–90 only one of the large towns had a lower zymotic death rate. I should feel disposed to adopt the Bristol plan were it not that there might be difficulty, in some towns at least, in cleansing the sewers. In Dublin, before they were ventilated, great care had to be taken in allowing the men to enter them, as the air was sometimes found to be mephitic. The proposal to ventilate sewers by causing pipes from them to pass up the front of the adjacent houses is not likely to meet with much favour. The plan has been tried in Sydney, Australia, and it is stated that the sewer organisms showered down from ventilating outlets on the windows and other parts of the house. Mr. J. M'Garvie Smith, who has made those observations, recommends that sewer air should be cremated and the open grids in the streets closed. Dr. Arthur has a very unfavourable opinion of sewer air, and suggests that the exit end of drains might be made to act as efficient traps by causing them to dip below the sewage level in the sewers. In narrow streets, and other close places, I certainly am in favour of abolishing the open grids. In cases where there are no ventilators great care should be taken to keep the sewers free by thorough flushing, and disinfectants should be occasionally put into them, especially in warm weather. Ventilating shafts and pipes are slowly superseding the grids. In wide streets shafts of considerable height should be erected, and a few of them would suffice to, at least, prevent pressure in the sewers, though it would not ventilate them much. Dr. Kenwood's system of cremating the gases is a good one, but, I fear, too expensive for general use. The ventilation of house drains is considered to be of even more importance than that of sewers. A trap prevents the entrance of sewer gases through the drain into the house, but on the house side of the drain it is usual to have two free openings. One of these is placed just inside the trap, the other is at the end of a pipe which passes from the drain to a point higher than the house. The idea is that pure air always enters the lower opening and passes out through the upper one, thereby ventilating the drain. It often happens that the fresh air inlet becomes a foul air outlet, for if the air in the ventilating pipe be warmer than the air in the drain the latter will not pass up to the higher opening. Very often, too, especially in the case of 4-inch bore drains, the flush from a water-closet may force foul air out through the so-called fresh air aperture. In my experience I often find these air inlets, when situated in deep areas and other confined places, a great nuisance. If the inlets cannot be placed in proper places it is better to do without them. The ventilating pipes will certainly prevent pressure being put upon the traps, and the drains can be kept free from foul air by thorough flushing.

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[a] Transactions of the Seventh International Congress of Hygiene, 1891.

It has occurred to me that instead of an opening for air ingress, a porous, unglazed earthenware chamber might be used. We know that gases diffuse readily through plaster-of-Paris and biscuit porcelain. A vessel of this kind placed on the drain would allow air to go through it, but would not allow the passage of microbes or solid particles. It would act upon air as the Pasteur-Chamberland filter does on water. It would sterilise the foul gases of the drain. I attached to a large vessel, containing wort in rapid fermentation, a porous earthenware vessel. No pressure, or a trifling one, took place in the air in the vessel unless the connection between it and the porous vessel was cut off; then the pressure became considerable.

PERSISTENCE OF TYPHOID FEVER AND ITS CAUSE.

Typhoid fever is not so prevalent in these countries or on the Continent as it formerly was; but it has not decreased in the same ratio as typhus fever, small-pox, and almost every other zymotic disease, except diphtheria. The general improvement in the sanitary condition of all our great towns has reduced the zymotic death rate to nearly one half of what it was at no distant date; but in some towns typhoid fever has not declined, and in a few it has increased. The ætiology of this disease is of great interest to the sanitarian; and it has been said, perhaps not on good grounds, that the general sanitary state of a town is directly as its typhoid fever death rate.

There is a very general belief that this disease is almost wholly propagated through the media of water, food, and sewer air. Whenever a case of typhoid fever occurs, the condition of the sanitary accommodation and drains is the first thing to be called in question. If nothing wrong is detected in those directions, then the water is accused. If the water is found to be pure, the blame is laid upon the milk. I have no doubt that localised epidemics of this disease are frequently caused by infected water or milk; but I believe that the greater number of cases arises from the *materies morbi* of the disease being absorbed from the air.

Up to the present pathogenic micro-organisms have not been frequently detected in the atmosphere, but neither have they been found, except rarely in water or milk, suspected to have produced disease. There are, however, some clear cases of detection of poisonous microbes in the air. Dr. R. Würtz and Dr. S. Lodge proved the existence of the *Bacillus anthracis* in air. According to Klein the bacillus of swine fever is transmitted through the atmosphere. The bacillus of tuberculosis has repeatedly been detected in the dust of rooms, and, therefore, must have been in the air.

Vailland relates a case in which typhoid fever was apparently propagated through the air.[a] Russian soldiers quartered in certain barracks were found to suffer much from enteric fever. A bacteriological examination of the dust in the barrack rooms resulted in the discovery of immense numbers of the *Bacillus typhosus.*

Justyn Karlinski, an authority on typhoid fever, relates that the prevalence of enteric fever in Stolac, a town in Bosnia, was due, not to polluted water, but to exhalations from a filthy soil.

The recent epidemics of typhoid fever in Havre have formed the subject of much discussion in the French Academy of Medicine. Brouardel considers that they were mainly caused by polluted water. On the contrary, Dr. Gilbert asserts that they were chiefly due to a polluted condition of the soil. He says that in Havre the soil is not purified, the houses are not drained, and but two elements of salubrity exist—namely, pure water and undoubtedly pure milk.

The effects of soil pollution on the health of a community are strikingly proved in the case of the City of Ahmedabad, Bombay Presidency. When the excreta of the population was deposited in the soil of the city, and kept there for an indefinite period, the death rate averaged in 1874–80, 54·75. Then the night soil was systematically removed to points just outside the city, and in the next six years the death rate fell to 44·74. Lastly, the excreta was removed to points some miles from the city, upon which the death rate fell to an average of 40·43.

Dr. Bertin, of Nantes, whilst believing in the transmission of typhoid fever through the medium of water, points out (giving an example) that it may be caused by infected dust from filthy soils (*Journal d'Hygiene*, July 12th, 1894).

In my Annual Report on the Health of Dublin for 1891, I gave a map showing the distribution of 1,988 cases of typhoid fever in Dublin. I pointed out that on the gravels the ratio of cases to the population was 1 in 92·8, and on the clays, 1 in 145·3.

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[a] "Revue Scientifique." January 25th, 1890.

This proved that the clays were safer to live on as far as typhoid fever was concerned. I expressed my belief that these facts appeared to show that the organisms that produce typhoid fever escape into the air more readily from the gravels than from the stiff and usually moist clays.

I have just prepared a map showing the distribution of 3,461 cases. The difference between the gravel and the clays, though not so great as previously pointed out, is shown very decidedly. This is probably due to the exceptionally hot and dry year of 1893, in which the superficial layers of the clays dried to a greater extent than usual, and permitted of the escape of the typhoid organism.

	Population of the City of Dublin by 1891 Census	Per Cent.	No. of Persons affected by Typhoid Fever in 12 years ended 1893	Per cent. of Total Number of Cases	Ratio of Cases to Population
Living upon Gravel Soils	75,486	30·8	1,292	37·3	1 in 58·4
Living upon the Clay -	169,615	69·2	2,169	62·7	1 in 78·2
Total - -	245,001		3,461	100	1 in 70·8

I believe that typhoid fever is a disease of the miasmatic class, and that it becomes endemic in certain localities in which the conditions of the soil are favourable to the development of the micro-organisms which cause the disease. That the typhoid bacillus can exist apart from man for an indefinite period is shown by the prolonged cultivation of this deadly organism in nutrient materials. If it can live and multiply on broth and potatoes it can, for a season, at least, exist in soils containing organic matter. Uffelmann's very recent experiments show that the typhoid bacilli can resist drying for a considerable time. After eighty-two days in white sand they were still capable of culture. In house sweepings they continued intact for a month. They can be blown about in dust, and in this way get into milk or water, and be directly swallowed or inhaled.[a]

Karlinski found typhoid bacilli alive after five months' retention in earth. He says that the part which the soil plays in epidemics should not be underestimated. He noticed a fact of great ætiological interest—namely, that when the soil was saturated with rain water the bacilli perished. I think it will be found that, however salubrious the gravels and sands may be in a general way, there are some diseases which prevail more upon them than on the stiff and cold clays. This, at least, is the case in Dublin, where typhoid is more prevalent on the gravels than on the clays.

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[a] Centralblatt für Bacteriologie und Parasitenkunde. 1894. XX. 133.

The gravels in Dublin lie low, and are nearest to the river Liffey, which flows through the city into a bay. The clays, which chiefly occupy the higher parts, rise to a height of 70 feet above low water in the river, whilst the gravels are only about 24 feet above low water. I caused three wells to be sunk in the gravels, and four in the clays, and noted the height of the ground water in them. In the low-lying gravels, generally believed in Dublin to be water-logged, the water remained low, whilst in the clays it came much nearer to the surface of the ground. The condition of the tide has only a trifling influence on the height of the ground water, although the bottoms of all the wells in the gravels and of one in the clays are below high water.

OBSERVATIONS ON THE HEIGHT OF GROUND WATER IN SEVEN DUBLIN WELLS, 1893–94.

Wells in the Clays.

Marrowbone-lane (height of ground above low water,[a] 68 feet).—Greatest depth of water surface from ground surface, 7 feet 7¼ inches, 7th October, 1893; least depth from ground surface, 5½ feet, 17th April, 1894; extreme of fluctuation, 2 feet 1¼ inches.

Stanley-street (height of ground above low water, 52 feet).—Greatest depth of water surface from ground surface, 6½ feet, 7th July, 1894; greatest depth from surface, 5 feet, 17th April, 1894; extreme of fluctuation, 1½ feet.

Mansion House (height of ground above low water, 43 feet).—Greatest depth of water surface from ground surface, 9½ feet, 23rd September, 1893; least depth, 7½ feet, 11th July, 1894; extreme of fluctuation, 2 feet.

Fishamble-street (height of ground above low water, 30 feet).—Greatest depth of water surface from ground surface, 7 feet 4 inches, 29th and 30th November and 4th December, 1893; least depth, 6 feet, 21st May, 1894—nearly the same up to 17th July, 1894; extreme of fluctuation, 1⅓ feet.

[a] Low water means the Ordnance datum line, which is 8·094 feet below mean sea level, and was the level of the low water in Dublin Bay on the 8th of April, 1837.

Wells in the Gravels.

Portland-row (height of ground over low water, 23½ feet).—Greatest depth of water surface from ground surface, 12 feet; all winter, 1893; least depth, 8 feet 2 inches, 5th October, 1893;[a] extreme of fluctuation, 3 feet 10 inches.

Hanover-quay (height of ground above low water, 24 feet).—Greatest depth of water surface from ground surface, 16 feet 10 inches, 17th July, 1894; least depth, 15¼ feet, 16th April, 1894; extreme of fluctuation, 1 foot 7 inches.

Essex-quay (height of ground above low water, 19½ feet).—Greatest depth of water surface from ground surface, 12¾ feet, 7th July, 1894; least depth, 8 feet 11½ inches, 18th April, 1894; extreme of fluctuation, 3 feet 9½ inches.

Mean of *maximal* depths from ground surface of water surface of wells in the clays - - - - -	7 feet $7\frac{65}{80}$ inches.
Do. *minimal*	6 do.
Difference - - - - -	1 do. $7\frac{65}{80}$ do.
Mean of *maximal* depths from ground surface of water surface in wells in the gravels - - - - -	13 feet 10⅓ inches.
Do. *minimal*	10 do. 9½ do.
Difference - - - - -	3 do. $0\frac{9}{10}$ do.

On the whole the ground water lies lowest when typhoid fever prevails most in Dublin.

Until lately the great majority of the houses of Dublin were provided with privies and ashpits, from which much filth percolated into the soil, and, although water-closets have almost completely been substituted for privies, it will be long before the soil and subsoil become purified, and at present they are just the kind in which the typhoid bacilli would find a congenial habitat. It has been suggested that the water-logged condition of Dublin is the cause of the prevalence of typhoid fever, and that the obvious remedy is subsoil drainage. It is, however, a fact that the low-lying portion of Dublin, where there is most typhoid fever, is not damp, and that the ground water lies low there, and that in the parts where the ground water comes much nearer to the surface, there is least typhoid fever. The explanation of this is not difficult. The cold wet clays are unfavourable to the bacillus of the disease, whereas they have a better feeding ground in the loose and well aërated gravels. The greater movement of air in the gravels, and the action of strong winds upon them, favour the evolution of the microbes from the soil, the superficial layers of which dry more readily than those of the clay. In hot, dry seasons Dublin suffers, like other towns, most from typhoid. The highest death rate from this cause occurred in 1893, a year phenomenally hot and dry.

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[a] This well was only 12 feet in depth, and it dried up in October, and remained dry all the winter.

Dr. David Hardie in a pamphlet on the atmospheric pathology of typhoid fever in Queensland (Brisbane, 1893), shows a connection between this disease and the soil. High barometric pressure and temperature favour the development of typhoid fever. A heavy rainfall in summer lessens the amount of disease, not only in that season but in the following winter. This effect appears to be due to the rain interfering with the germination of the bacilli, and the rain also washes them out of the soil.

The Dublin pipe-water is supplied continuously to the houses, and storage cisterns have fallen completely into disuse. The water is admittedly of a high degree of purity, and is collected in a mountainous region 23 miles distant from the city. London, on the contrary, derives its water from rivers into which the sewage of a considerable region is discharged, sometimes with but slight, if any, purification. The water is generally stored in exposed cisterns. Yet the typhoid fever death rate is more than three times as great in Dublin as in London. The drainage of London is superior to that of Dublin, and its soils are not so polluted. It is in the highest degree improbable that faulty sanitary accommodation and house drainage is the cause of the high typhoid fever death rate in Dublin. In this respect it is neither worse nor better than many large towns which have very little typhoid fever. The distribution of typhoid in this city shows that soil conditions have an influence upon it, and I believe that by far the greater number of cases owe their origin to emanations from a filthy soil. The reduction of the amount of typhoid fever in Dublin and Belfast (which is placed under somewhat similar conditions as to soil and drainage) can be accomplished only by keeping soil, air, food, and drink pure. The prompt and complete removal of filth, the continuous flow of sewage in the mains, the prevention of leakage from drains and sewers, are obvious measures for lessening the mortality caused, not only by typhoid fever, but by many other maladies.

It is perhaps worth remarking that since the introduction of stone pavement into the Dublin streets, typhoid fever has increased. It is most prevalent amongst persons whose working hours are spent in offices and warehouses in the streets which are paved or asphalted. The bacilli of typhoid fever or their spores, which escape into streets that are Macadamised, cannot get through the paved roadways, and are therefore more likely to be drawn into the interior of the houses through the basement floors, which are rarely concreted. The rain washes the soil beneath the Macadamised roads, but the soil beneath the paved streets receives no purification of that kind. I believe there would be little or no typhoid fever in Dublin if the city rested on a stratum of asphalte.

During the 10 years ended in 1893 1,699 deaths ascribed to typhoid fever were recorded in Dublin: of these 24·2 per cent. were registered in the first quarters of the year, 16·8 per cent. in the second, 19·7 per cent. in the third, and 39·3 per cent. in the fourth.

The limits of this address do not permit of any discussion on the biology of the so-called typhoid bacillus, and whether or not it is capable of permanent independent existence apart from man. There is reason to believe that at least its spores can retain their vitality for lengthened periods outside man. The possibility of the evolution during successive generations of harmless bacilli of disease-giving properties is highly probable. The innocuous *B. coli communis* is the possible ancestor of the virulent typhoid organism, and both are almost indistinguishable. If this be so there must be many transitional forms between the two bacilli, and consequently many forms of typhoid fever or diseases resembling it. Professor Von Babes has detected in the bodies of persons who had died from typhoid fever bacilli which, though morphologically resembling Eberth's organism, differed from it under cultivation and in other respects. Dr. M'Weeney and myself have cultivated an organism exactly resembling the typhoid bacillus, and which we found in polluted water believed to have caused an outbreak of typhoid fever. This organism was precisely intermediate in its reactions between the typhoid bacillus and the *B. coli communis*;[a] and quite recently Dr. M'Weeney[b] found, in a similar kind of water, a bacillus which almost, but not quite, comported itself like the typhoid bacillus.

[a] Journal of State Medicine. July, 1894.

[b] British Medical Journal. May 5, 1894.

It is stated that typhoid prevails most among the upper classes. This is not the case in Dublin. During the years 1892 and 1893 the following were the mean death rates from enteric fever amongst the different classes of society:—

	Deaths per 1,000 of the Class
Professional and independent class	25·7
Middle class	71·1
Artisan class	57·3
General service class	51·3
Hawkers, porters, labourers, &c.	57·5

Clerks, commercial assistants, civil servants, traders, and business managers make up the great bulk of the middle class; and amongst persons following those occupations, which keep them mainly within doors, enteric fever is most prevalent.

TREATMENT OF TYPHOID DEJECTA.

I am of opinion that typhoid stools are sometimes not completely disinfected before they are allowed to pass into the sewers. Phenol is generally mixed with them, but this body has not a very strong action upon them. Bacteriologists, dealing with mixtures of the typhoid and other bacilli, have killed the latter by phenol solutions, leaving the typhoid bacillis separate and alive. I have cultivated typhoid dejecta, which had been treated with carbolic acid, and succeeded in developing the bacilli in large numbers. The small portions of excreta in the stools sometimes are not completely permeated by the disinfecting solution. A 5 per cent. solution of sulphuric acid, with a little permanganate of potassium, is a good steriliser. It should be added in equal volume to the stool. Smooth porcelain vessels are the proper receptacles for the mixture, and they should not be emptied for 1 or 2 hours. To prevent the action of the acid upon drain and sewer, lime should be added to it before the mixture was thrown out. Dr. Day, Resident Physician, Cork-street Fever Hospital, has adopted this treatment of typhoid dejecta, and considers it satisfactory.

Undoubtedly the best way to dispose of infected excreta is by burning it in a destructor, as was first, I think, done by Dr. Sergeant, at the Bolton Fever Hospital. A destructor for this purpose costs about a hundred pounds, and it should be attached to every hospital where fever patients are treated.

THE EXTINCTION OF INFECTIVE DISEASES.

The domain of Public Medicine is steadily enlarging in every direction. Investigations into the intimate nature of the infective maladies, the mystery of the immunity from some diseases shown by certain individuals, races, and countries, and the conditions affecting contagion, are going on wherever science is cultivated. Surely the time must come when the results of these researches will enable man to extirpate some or all of the diseases which even now we consider and term "preventable."

The slow growth of population in mediæval times was mainly due to plagues and pestilences the great majority of which have ceased to exist. In our own times we may probably witness the extinction of two diseases which in former days cost an enormous loss of life—I refer to typhus fever and smallpox. Leprosy and ague, once common diseases in Britain, have died out. The frightful mortality in our towns, lasting well into the eighteenth century, was mainly due to zymotic diseases. Public medicine and private hygiene have lessened the death rates in our towns by 20 to 50 per cent. Let us contrast the England of to-day with the India of to-day, which, so far as relates to sanitation, resembles the England of the middle ages. In England from 2 to 3 persons per 1,000 of the population die every year from zymotic diseases; in India in 1891 the death rate from all causes was 30·14, whilst the zymotic death rate was 18·27, or equal to the death rate from all causes in England. In the vast Province of Bengal the zymotic death rate was 23·04.

England has been described by foreigners as the birth-place and home of sanitary science, and it surely deserves the compliment. Its general and fever death rates are amongst the lowest in the world. This is the more remarkable when one considers the large proportion of the people who live in towns—for towns everywhere are less salubrious than the open country.

The mean zymotic death rate in England and Wales in the decade ended in 1879 was 3·524, and in the great towns 4·479. In the decade ended in 1892 the rate in England and Wales was 2·037, and in the great towns 2·899.

Never before in the history of the world were thirty millions of people located on fifty thousand square miles, as is the case with the England of to-day. Of these millions two-thirds reside in the towns, which yearly have a quarter of a million added to their teeming population. In Germany 42 per cent. of the population live in towns containing 2,000 and upwards. Only every tenth Russian lives in a town. Notwithstanding the great and continuous increase in its urban population, Great Britain grows healthier and healthier from decade to decade. Amongst the various influences which have contributed to bring about this exaltation of the national health, the work of the British Medical Association has not been least effective. Judged by its past we may surely expect that the voice of the largest and most powerful medical association in the world will continue, trumpet-tongued, to advocate the cause of sanitary progress.

Death rates from the principal Zymotic Diseases per 1,000 *Persons living.*

Year	England and Wales	Large English Towns	Year	England and Wales	Large English Towns
1870	4·52	5·63	1882	2·76	3·61
1871	4·61	6·48	1883	2·32	2·90
1872	4·03	4·83	1884	2·80	3·61
1873	3·07	3·90	1885	2·23	2·88
1874	3·77	4·46	1886	2·42	2·98
1875	3·47	4·32	1887	2·42	3·33
1876	3·14	4·05	1888	1·87	2·49
1877	2·73	3·52	1889	2·23	2·87
1878	3·43	4·40	1890	2·16	2·89
1879	2·47	3·20	1891	1·91	2·40
1880	3·36	4·04	1892	2·01	2·64
1881	2·33	3·36			

Art. VI.—*A Case of Cancrum Oris in Typhoid Fever.*[a] By H. T. Bewley, M.D., F.R.C.P.I.; Assistant-Physician to the Adelaide Hospital.

ALTHOUGH Cancrum Oris has long been known, it is a disease about which a great deal of uncertainty prevails. It occurs among poor, dirty, and delicate children, and even in these some fever must still further lower the vitality before it comes on. Mercury, too, is thought to predispose to it, if not to cause it.

With regard to the mode of commencement of the gangrene I quote from Eulenberg's Cyclopædia of Medicine—"It is doubtful where the disease begins, whether in the mucous membrane as an ulcer or an inflammation, or in the submucous connective tissue as an infiltration which subsequently involves the mucous membrane; the first view is the more probable. Doubt also prevails as to the nature of the changes in the tissues which precede the gangrene. Clinical observation would seem to show that the disease is characterised by an inflammatory process which rapidly leads to gangrene, and not by a primary necrosis."

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[a] Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, January 19, 1894.

As to the morbid anatomy of the disease, the slough is composed of *débris* of tissue, putrefactive organisms, &c., while round it the tissues are infiltrated with serum and leucocytes, and the blood vessels are dilated.

It seems that the disease must belong to the class named by Harrison Cripps, in Holmes' System of Surgery, "Specific Septic Gangrenes," and that it must be caused by some organised virus. Many attempts have been made to find this organism. Sansom, in 1877, described small, highly refractile bodies, about one-twentieth the size of a red blood corpuscle, which he found in the discharge from the sore, as well as in the blood, urine, and fæces. Since then, however, he has failed to find them in cases of cancrum, and has discovered them in cases suffering from other diseases. Schimmelbusch of Cologne, Coates, Lingard, and Elder of Edinburgh, have all described bacilli growing out into the tissues round the necrotic patch; but the bacilli of one observer seem to differ from those of another. Those of Coates are anaërobic. Those of Schimmelbusch, when inoculated into the corner of the mouth of rabbits, caused small ulcers. As yet we cannot say if any or all of these bacilli are the virus of cancrum; inoculation has not reproduced the disease; it is not likely that even the true virus would do so, because it is improbable that a germ, which can only exert its influence in human beings when in the most extreme degree of exhaustion, should be able to excite the disease in healthy animals. The malignancy of the organism must be slight.

Cancrum oris is, I think, now-a-days a rare disease. I have myself seen only two cases—one was a child who had suffered from measles, who was brought into the surgical ward of the Adelaide Hospital with its cheek all sloughed away; it died soon after admission. The other case is the subject of this paper.

The disease occurs most often after measles, less often after typhus, scarlatina, and small-pox. In typhoid it is a rare complication. Murchison met with it only once; he adds, "it is usually fatal." Other writers only mention it as a very rare occurence. The only recent report of a case of cancrum oris in typhoid that I have found is a brief note by Dr. F. Taylor of a case presented by him to the Clinical Society of London, in October, 1893. The patient was a girl, aged eleven. Suppuration began at the root of a tooth, and thence a sloughing process started. It was treated by a 10 per cent. solution of carbolic acid, applied every half hour, and afterwards by nitric acid used under an anæsthetic. Recovery took place, but with contraction of the mouth.

Case—My patient was a boy, aged fourteen, who had always been healthy and strong. His family history is favourable, except that, I believe, his father drinks. About September 5th, 1893, he began to lose appetite, and suffer from headache, and loss of strength. He grew worse, and was admitted into the Adelaide Hospital on September 13th. When admitted he was feverish, his evening temperature being about 102°, and his morning temperature about 100°; his tongue was furred; he was thirsty, but had some appetite. His bowels were confined, and an enema was given him every second day, the motions being fluid and light-coloured. The thoracic and abdominal organs were normal; spleen not enlarged—a few spots present. He slept fairly well. His diet consisted of three pints of milk and a cup of tea morning and evening.

For a week after coming into hospital his illness seemed slight. However, about the end of the third week of his illness—September 27th—he became much worse. His temperature rose to 104° or 105° F. every evening, and the morning remissions became less marked; his pulse became more frequent, being 116-120 in the minute; his abdomen became exceedingly tense, distended, and tympanitic all over. At the same time his nervous system suffered; he became first dull and heavy, then almost wholly unconscious by day, while by night the stupor was interrupted by outbreaks of delirium, and attempts to get out of bed. This restlessness at night increased, so that he was given 10 minims of Battley's solution of opium on the 6th of October, and on subsequent nights this dose was repeated, two doses being sometimes needed during one night. He became unable to put out his tongue, which grew dry and shrivelled; he lay always with his mouth open. About the end of the fourth week of his illness several suppurating sores came, without any apparent cause, on his body and thighs, and purulent discharge came from both ears in considerable amount; he was so dull and stupefied we could not tell if he were deaf or not. He sometimes passed water into the bed. There was great twitching and trembling of his arms and legs. It was not easy to make him take food; still about three pints of milk were given every day.

These bad symptoms made us think he was going to die, but about the end of the fifth week of his illness he grew rather better; his abdomen became softer and less swollen, and his mind became less dull. However, a new symptom appeared on October 16th—the forty-first day of illness: a black patch, about the size of a sixpence, was noticed inside his right cheek, about half an inch back from the angle of his lips, and considerable hardness was felt deep in the tissues of the cheek. The black spot did not seem to extend deeply into the tissues, but it was firmly fixed in its place. Next day both it and the hardness had considerably extended, and on the following day a small black patch appeared on the inside of the left cheek, opposite the second upper molar tooth; this spot was not accompanied by hardness in the tissues around. The stench from his breath now was indescribable and sickening in an extreme degree; he, however, seemed to suffer no inconvenience either from this or from the sore in his mouth. His pulse was very weak, and difficult to count, running up to 160 per minute. Believing him far too ill to allow of any surgical interference with the cancrum, I thought the best treatment was to use local antiseptics; accordingly his mouth was frequently washed out with weak creolin lotion; five per cent. creolin lotion was dropped on the slough; and three or four times a day a few drops of eucalyptus oil were dropped on the slough, by means of the ink-filler of a stylographic pen.

I had been hesitating to give him large quantities of food, fearing the typhoid fever, which did not seem to have come to an end; however, on October 20th—the forty-fifth day—it appeared that the only chance of saving the boy's life was to give him as much nourishment and stimulants as he could swallow, so I added to his three pints of milk, the yolks of six eggs, three-quarters of a pint of muriatic beef juice, and twelve ounces of whisky—half an ounce every hour, night and day.

Next day—the forty-sixth—the slough on the left side came away; it was superficial, and the resulting ulcer soon healed. The slough on the right side, however, increased in size, it extended all over the inner surface of the cheek, to within one-quarter of an inch from the lips, and the surrounding hardness grew greater. There was no distinct line of demarcation, there being no attempt at separation between the dead and black slough and the living tissues around.

All this time the outside of his cheek was healthy. On the forty-eighth day a discoloured spot was seen about an inch from the angle of the lips. The discoloration spread. On the fiftieth day a black slough of the size of a shilling was seen in the skin. However, the general condition seemed a shade better.

The changes that now occurred surprised me by their rapidity. On the fifty-first day the slough had ceased to spread, and was beginning to loosen; next day it was nearly free, and on the fifty-third day I lifted out the whole slough with a dressing forceps, leaving a perfectly clean surface.

The destruction that had taken place was very considerable. There was a round hole through the cheek of the size of a shilling, about an inch behind the angle of the lips; on the inner surface, the loss of tissue extends close to the lips and backwards some distance along the outer and inner surface of the masseter, the anterior edge of the muscle standing out into the cavity. Above and below it extended to the junction of the cheek and gums, the latter not being affected.

When the slough came away the stench ceased, and in a few days the boy improved wonderfully, the temperature which had varied from 101° to 104° F. falling to normal, and his pulse growing stronger and less frequent. Diarrhœa ceased, and the stupor passed away. His lungs and kidneys remained healthy throughout. For sometime longer, however, he was delirious by night, though quite quiet by day. I lessened and then stopped the whisky as soon as I could, and gave him solid food. After about a fortnight's improvement he had some kind of a feverish attack, lasting nearly ten days; but with this exception he made a steady recovery.

The hole in his cheek, left by the slough coming away, I expected would lessen in size to some extent, but I thought it would be needful to do a plastic operation to close it. At first it gave him very great inconvenience, for his food used to come out through it when he was eating, but gradually it grew smaller, and after six weeks closed completely. The inside of the cheek, too, healed up gradually. To avoid cicatricial contraction, I have made him hold every day between his teeth a piece of wood as large as he could possibly take in. Up to the present (six months after his recovery) there has been no trouble. He looks in perfect health, and there is hardly any deformity in his face.

The following points specially struck me in this case:—

1. The rapidity with which the slough separated and came away. On October 23rd there was a faint discoloration—a kind of bluish-black colour—under the skin; on the 25th there was a black slough of the size of a shilling; on the 28th it was quite loose and was lifted away.

2. As to treatment—That recommended is singularly uniform—caustic or destructive agencies of some kind or other. If any treatment of this kind be adopted, I am convinced it should be thorough, and should aim at destroying the seemingly healthy tissue for some distance round the slough. Nitric acid cannot destroy this zone, which we know to be invaded by micro-organisms. If any operative treatment be adopted, I think it should be either excision or free scraping, or a combination of these. Sir J. Lister, in a recent case, first removed the diseased area, and a considerable portion of healthy tissue round it. He then removed with scissors

every portion that looked suspicious. Then he applied a Volkmann's spoon vigorously. Then pure carbolic acid was rubbed in, and the whitened area again scraped away; a strong solution of corrosive sublimate was applied, and an antiseptic dressing put on. The child recovered, but naturally a plastic operation had to be done on account of the deformity.

My boy did not seem fit for any such proceedings, and did very well without them.

3. As to the use of alcohol—Being almost in despair about him, I gave him a much larger amount of whisky than I am in the habit of allowing, and am convinced it did him a very great deal of good. The boy was fourteen years old, and for ten days took half an ounce of whisky every hour, night and day—in all, six pints. At the end of that time it was lessened in amount, and finally stopped. There was never any trace of intoxication.

4. As regards the stench—I think the pure eucalyptus oil dropped on the slough was the most successful agent in overcoming the stench.

ART. VII.—*A Case of Acute Diphtheritic Dysentery; Recovery.*[a]

By R. PERCY JONES, B.A., M.D., Univ. Dubl.

IN discussing the disease known as dysentery, we are discussing no new disease. The Greek word is classical; a passage in Herodotus clearly alludes to the dysentery of camps, occurring in the army of Xerxes, during its retreat from the invasion of Greece. Hippocrates, that master of ancient medical lore, correctly refers to it as ulceration of the intestine. It is also used by St. Luke, himself a physician, writing in the Acts of the Apostles—*πυρετοῖς καὶ δυσεντερίᾳ συνεχόμενον*, &c. Pathologists of the present day are mostly agreed as to the processes concerned in the production of this disease. Virchow designates these respectively as "catarrhal" and "diphtheritic." This latter, known as red dysentery, which is of a sloughing or necrotic nature, is the one we are concerned with at present. One word in explanation. This term, diphtheritic, has now two meanings, which must be carefully distinguished from one another. Diphtheria is described as a specific disease, generally affecting the throat. But in Virchow's sense, "diphtheritic" inflammation of a mucous membrane, or of the skin, has not neccesarily anything to do with that disease; it is a morbid change of a particular kind, probably dependent upon intense irritation of the part. Diphtheritic, in Virchow's sense, does not imply the presence of a false membrane, as Hewson writes—"Muco penitus absterso, nulla membrana superficiem quæ tegeret inventa est"—but it does imply a putrid, destructive, more or less necrotic process. The essential pathological change is an atrophy of the coats of the bowel, the glandular structures having disappeared, and the wall being so attenuated as to be transparent.

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[a] A Thesis read for the degree of M.D. in the University of Dublin, June, 1894.

Whilst acting as *locum tenens* for a former principal, I met with the case which led me to select this subject for my thesis, and it furnishes a striking illustration of the value of ipecacuanha in large doses, and likewise corroborates the experience of the most competent observers—viz., that opium, if systematically given, is injurious. I have now met with four cases of sporadic dysentery (in England) in the last three years, and three of them proved fatal on the opium treatment. Before commencing my notes on the case, I must state that they are not, perhaps, quite as full as I could wish, as the patient was ailing exactly a fortnight before I saw him, and, as is generally the case, the characteristic symptoms did not develop for some days, and thus the case was very naturally looked upon as one of ordinary diarrhœa, and treated accordingly. But the patient's mother gave me the details very clearly, of course minus those of temperature, pulse, and an accurate description of the character of the stools. During the time he was under my observation the temperature never rose above 100·6° F.

Case.—F. V., aged eighteen, living in St. Alban's, a shoemaker by trade, and hitherto in good health, was taken sick on Thursday, April 12th, 1894, with a general feeling of malaise and uneasiness about the abdomen with diarrhœa. On the following day the uneasiness in the abdomen turned to pain, and the diarrrhœa continued, but stopped suddenly in the afternoon. "He continued queer" until the 16th, when the pain came on again.

17th.—Took half an ounce mag. sulph. in early morning; in great pain; took another half ounce of mag. sulph. at 1 p.m. His mother came to the surgery at night and told Dr. Morison the symptoms. He did not see the boy, but sent a mixture containing tinct. chlorof. et morph. and sod. bicarb.

18th.—Bowels moved at 6 a.m.; Dr. Morison saw him at 12 midday.

19th.—Still in great pain, with profuse diarrhœa. (Whether this diarrhœa was increased by the ounce of salts he had taken the previous day, or was the result of the gradually increasing dysenteric poisoning, I am unable to say.) Put on pil. opii gr. j. and ext. bellad. gr. ½ every four hours.

21st.—Sickness set in, and the motions became bloody and very offensive. His mother described them to be "like bits of flat burnt paper swimming on the top."

22nd.—The motions appeared to be all blood.

23rd.—Given ten grs. of bismuth subnit. in mixture for the sickness every fourth hour, alternating with the opium.

26th (Thursday).—I saw him for the first time at 10 20 a.m. Temp. 98° F.; pulse, 120; dribbling; very anæmic; emaciated; stools horribly offensive, consisting of large masses of muddy slime, floating in blood and urine. Tenderness on pressure over the cæcum and ascending colon, and markedly so over the lower edge of the liver, which made me keep in view the possibility of hepatic abscess. Tympanites not excessive. I advised continuation of the same treatment (viz., a pill containing opium gr. j. and ext. bellad. gr. ½, alternating with bismuth subnit. gr. x. every four hours).

27th.—T. 98°; P. 100. Had passed a copious motion at 11 30 the previous evening; had slept but little; much weaker; very anæmic; eyes sunken.

28th (10 30 a.m.)—T. 97°; P. 120; very feeble; no motion for thirty-five hours; quite conscious, but somewhat slow in recognising his relations; called suddenly to see him at 5 45 p.m., having passed the first motion since 11 30 p.m. on the 26th (*i.e.*, forty-two hours) and subsequently fainting. T. 96°; P. 140; very feeble; ordered brandy, two ounces every second hour, and left him, determined to try the effect of large doses of hippo as a last resource. I sent a powder of gr. xxx., to be taken in halves and with as little fluid as possible to wash it down with, and ice to suck if his thirst was great. The first half he vomited up directly, but the second half he kept down for about one hour. Saw him again at 10 p.m.; T. 96°; P. 144; dribbling; his finger-tips bluish, and hands quite cold. I injected a syringeful of ether, which at once had a most beneficial effect, and, increasing the amount of stimulants, I left him for the night, with but the faintest hope of seeing him alive again.

29th (Sunday, 8 15 a.m.)—Had had no sleep, in no pain, but had rallied somewhat after having passed two or three copious motions, horribly offensive. At 10 15 a.m. I gave him 25 grs. hippo, dissolving the powder with the aid of min. xv. of ac. sulph. dil. and some tinct. aurant, and, having made them into four somewhat bulky pills, I rolled them in butter, and they slipped down quite easily, one after the other, with a sip of water after each. I ordered perfect quiet, and a turpentine stupe to the abdomen in two hours' time, and a little iced brandy for the thirst, but not to exceed four ounces in the three hours immediately succeeding the dose. At 7 45 p.m. I saw him, and was astonished at his decided improvement. The ipecac. had stayed down for three hours, after which he vomited freely and passed large quantities of bloody stools; he then broke out into profuse perspiration, and slept for nearly four hours, waking up refreshed, his temp. being normal and pulse 84, and much fuller. The change was little short of miraculous. I gave him another 20 grs. of ipecac. in pills as before, but this time I injected gr. ⅙ of morphia ten minutes before giving him the pills.

30th.—Still improving, the morphia having given him a good night's rest, in addition to preventing any undue influence of the emetin; diarrhœa still continuing.

May 1st.—Much better; motions containing far less blood.

5th.—I gave him 15 grs. of ipecac. every night since the 1st inst.; had not detected as yet any formed fæcal matter; allowed him toast and weak tea, and a lightly boiled egg. His diet since the 26th April, the day I first saw him, had consisted of peptonised milk (Benger's liq. pancreaticus), peptonised beef tea, bovinin and brandy, all at stated intervals.

15th.—I heard from Dr. Morison that he was up and out, his motions practically normal, but still extremely weak.

Remarks—The origin of sporadic dysentery is usually attributed to the ingestion of irritating articles of diet—*e.g.*, unripe fruit, decomposing meat, bad water. In the above case I could obtain no such cause, and the water in St. Alban's is above suspicion. Nor could I attribute it to that commonest of all causes in most diseases—viz., cold; although one is so apt to fall back upon it, when one cannot detect any tangible cause. It would appear incorrect to attribute an inflammation of the cæcum and colon to irritating ingesta, for they would be sure to set up an active peristalsis, and so expel the irritant; and it is hardly likely that the ingesta would leave the small intestine unaffected. Yet it is well known that such is the case in poisoning by bichloride of mercury, in which violent inflammation and even ulceration of the cæcum and colon have repeatedly been observed, although the small intestine had escaped *in toto.* There is some reason for thinking that one factor in the causation of dysentery may be habitual torpidity of the large intestine. Virchow lays stress on the fact that the cæcum and flexures of the colon, which are particularly liable to be affected by the disease, are also especially apt to become loaded with fæcal masses. And it follows that if there be any irritant amongst the intestinal contents, its retention must be favoured by the imperfect peristalsis, and thus favour its action. And Annesley long ago pointed out that in India the disease often commences with the characteristic signs of morbid accumulation in the large bowel. One important symptom—and according to Dr. Woodward the most characteristic—was, in my case, absent from first to last—viz., tenesmus; but it is well known that this symptom is absent when the cæcum and upper part only of the large intestine is diseased, as was undoubtedly the case here.

As regards treatment—I am firmly convinced of the efficacy of ipecacuanha, though much has been said to the contrary. One thing is certain: if used at all, it must be used in large doses—forty, or at least thirty grains—to be repeated according to the effect on the patient. In Dr. Maclean's hands, in India, it has proved of enormous value, and it was due to the perusal of one of his cases—that of a lady in Calcutta, who was so exhausted that her voice was scarcely audible, and who, after the third dose of twenty grains, given at intervals of eight hours, was out of danger—that I was led to try it in this case, and to that, and that alone, the patient owes his life. The best method of administering this nauseous remedy is by first giving a hypodermic injection of one-third or one-fourth grain of morphia, and then making thirty grains of the powder into four large pills, with the aid of about min. xv.-xx. of acid. sulph. dil., and then rolling them in butter, so that they slip down quite easily, and the patient does not even taste them. But opium, if systematically given, is worse than useless. How the ipecac. acts is still a mystery; the emetin is the active principle, but I firmly believe that there is some other principle—antiseptic, maybe—as yet unknown, but which, with the light of increasing chemical science, we shall discover ere long. Finally, then, we may sum up the salient features of this interesting and instructive case as—

1. The apparent absence of any known factor in the causation.
2. The downhill course on opium, whilst *systematically* given.
3. The almost miraculous effect of the ipecacuanha.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Physiology of the Carbohydrates: their application as Food, and relation to Diabetes. By F. W. PAVY, M.D., LL.D., F.R.S. London: Churchill. 1894. Large 8vo. Pp. 280.

THIS volume, which contains the results of the work of thirty years by one of the foremost investigators of the subject with which it deals, cannot fail to excite in the highest degree the interest both of physicians and of physiologists. It would be premature to express any opinion as to what may be the fate of Dr. Pavy's views. They will probably be for many years the subject of experimental criticism. But there can be only one opinion as regards the energy, perseverance, and tenacity of purpose which have enabled the author through so many years to devote his time to laboratory work, and have made it possible for him to give, as a result of his labours, a connected history of one of the most important and difficult problems in physiology.

The work opens with an account of carbohydrate matter, its generation in the vegetable organism, and a description of the different classes of carbohydrates one by one. Then the now well-known behaviour of sugars with phenyl hydrazin is described. The osazones, or compounds of sugar with phenyl hydrazin, have been much employed by Dr. Pavy as tests for the presence of sugar, and the text is copiously illustrated by reproductions of photographs of the crystalline compounds obtained.

The transmutations of carbohydrates are next considered. These are twofold—one due to increased hydration, and effected by the action of acids or of ferments; the other, due to diminished hydration, effected by protoplasmic agency. Illustrations of these are common in both the animal and vegetable organism.

In the section on glucosides, the author states fully his views as to the glucoside constitution of proteid matter. When proteid is treated with strong potash solution, with sulphuric acid, or by digestive ferments, a substance is obtained by cleavage of the original molecule, which forms osazones with phenyl hydrazin and reduces cupric oxide, but which is optically inactive and does not ferment. That this is a carbohydrate there can be no doubt, although it has not yet been brought to the form of glucose. It is shown in support of the same view of the constitution of proteid, that in the growth of the yeast cell proteid is formed from carbohydrate and ammoniacal salts, and commonly in vegetables from carbohydrate and asparagin.

A special chapter is devoted to a description of the analytical methods employed by the author in his researches, particularly his modifications of the copper tests for sugar.

The changes which are undergone by the different carbohydrates in the intestinal canal are described, and it is shown that during the absorption of these substances the blood of the portal vein is much richer in sugar than at other times. During fasting the blood everywhere contains the same quantity of sugar, from 0·6 to 1 per 1,000, expressed as glucose; but during digestion of carbohydrates the sugar of the portal blood may rise to 3 or more per 1,000—and this sugar has a lower reducing power than glucose, while the sugar of the blood in other parts is glucose.

The function of the liver is to stop the sugar entering by the portal vein, and to prevent its passage into the general circulation, which would give rise to diabetes. The sugar coming to the liver is converted to glycogen, and laid up in the hepatic cells. This is an example of the transmutation to a lower state of hydration which is brought about by protoplasmic activity.

The formation of glycogen from animal food is generally attributed to a proteolytic action of the liver. Dr. Pavy, however, shows by the phenyl hydrazin test that such substances as beef-tea or commercial meat extract contain sugar, and the decomposition of proteids by the digestive ferments splits off the carbohydrate from the glucoside proteid molecule, and so the formation of glycogen in animal food comes to be the same process as that when the food consists of carbohydrate, only in the latter case the glycogen is much more abundant.

The generally received view, which was that of Bernard, is that the glycogen stored in the liver is gradually reconverted into sugar and given out to the hepatic blood by which it is carried into the general circulation. This opinion has always been strenuously opposed by Dr. Pavy. He finds that the sugar in the hepatic blood is never in excess of that in the rest of the circulation; that the sugar is the same in the arterial and venous blood; that at the moment of death the sugar found in the liver is in amount only the same as that found in other parts of the body. After death a formation of sugar takes place, due to the action of a ferment on the glycogen; this transformation takes place so rapidly that, if it occurred during life, all the glycogen would be converted to sugar in such a short time that between one meal and another the liver would be free from glycogen, and diabetes would result from the abundant passage of sugar into the blood. The ferment must, therefore, be inhibited during life by some influence.

In healthy urine, as is now known, a certain quantity of sugar exists. This is estimated as about 0·5 per 1,000. Numerous analyses are given of the different tissues of the body, showing the quantity of sugar they contain, and many figures of the osazones formed by it with phenyl hydrazin.

Since, then, glycogen does not undergo, as commonly taught, conversion into sugar, what becomes of it? The formation of glycogen is an example of the action of protoplasm on carbohydrate, causing a transmutation to a lower state of hydration. This action is not peculiar to the liver. It is probably a function of living protoplasm everywhere. Glycogen is to be found in many other parts of the body, and is probably formed where it is found. When glucose was injected into the jugular vein, it was excreted by the kidneys partly as a sugar of lower reducing power, the change being probably effected by the living cells of the kidneys.

But the key to the explanation of the destination of the glycogen was found, according to Dr. Pavy, in the discovery of the glycoside nature of proteid; and, while altogether denying the glycogenic theory, he maintains that the glycogen (so-called) is really employed in the building up of proteids and of fats. In this synthesis the cells of the intestinal epithelium are supposed to take an active part. The disappearance of peptone in the act of absorption may be due to its combination with carbohydrate under the influence of the epithelium protoplasm. Experiments are described in which, after a diet of moist oats, the epithelium of the villi and the lacteals contained large quantities of fat, and photographs of the appearances are given which would seem to make doubt of this impossible.

It is supposed that this transformation is not direct, but that the sugar passes first into the constitution of the proteid molecule, from which then the fat is split off. Thus, protoplasmic action is the agency by which the appropriation of carbohydrate matter is affected, and the agents of appropriation are the cells of the villi and the liver. If the power of these agents is impaired, sugar will pass into the blood and diabetes will result. According to the degree of impairment will be the severity of the disease. If only moderate, a restriction of the ingested carbohydrate will cause a disappearance of sugar from the urine, the power of the protoplasm not being altogether lost. But in the worst cases, even on purely animal diet, the urine is saccharine, for here even the carbohydrate, split off from the proteid food by the digestive ferments, cannot be appropriated, but passes into the blood and leaves the body by the kidneys. It is supposed, however, that the error is not due to the protoplasm itself but to its surroundings, and, of these, one of the most important is the state of the blood. An unduly oxygenated state leads to the occurrence of saccharine urine. Hence the nervous system, leading to vaso-motor paralysis, comes in as an important factor in the causation of diabetes.

Investigations on Microscopic Foams and on Protoplasm, Experiments and Observations directed towards a Solution of the Question of the Physical Conditions of the Phenomena of Life. By O. BÜTSCHLI. Authorised translation by E. A. MINCHIN, B.A. London: Adam & Charles Black. 1894. Pp. 379.

IN this very important work an attempt is made to show that the structure of protoplasm is that of a very fine froth or foam. That this is the true protoplasmic structure is inferred not only from a microscopic examination of many different kinds of protozoa and of the protoplasm of the cells, muscle fibres, and other parts of the higher animals, but from an investigation of artificially-prepared oil foams, which were found not only to resemble structurally the protoplasm of living organisms, but to reproduce the movements and even the appearances of irritability manifested by the latter.

The ingenious and laborious efforts which were made to get suitable foams, and the innumerable and minute precautions necessary to observe in order to achieve success are fully given, but for this as for all the other details we must refer to the work itself.

It is shown that in protoplasm both the framework and the intervening substance must be fluid. The intervening substance or enchylema is a watery solution, while the framework, although a fluid, is insoluble in water. It is most probable "that its principal component is an albuminous compound, related to the nucleins, the so-called *plastin.*" If this is looked on as truly insoluble in water, the assumption of an oily membrane or something of the sort, which would protect it against the action of water, becomes unnecessary, although not impossible.

"If the protoplasmic framework is composed of a body of this kind, it is quite intelligible that local differences in surface tension must produce phenomena of movement similar to those which have been observed in the drops of oil-froth. It is only a question whether the enchylema also seems suited to play the part which pertains to it."

It is shown that there is a strong probability that the enchylema contains saponaceous substance in solution.

"The explanation of the processes of movement in Amœbæ is to be found, therefore, to my mind, in correspondence with the interpretation of the phenomena of streaming movements in the drops of foam, in the fact that, by the bursting of some of the superficial alveoli, enchylema is poured out upon the free surface of the protoplasmic body, where it produces a local diminution of surface tension, and in this way sets up an extension centre together with forward movement. In this way are explained not only simple amœboid movements, from which we started, but also more complicated movements and changes of form by means of finger-shaped pseudopodia. The formation of such pseudopodia takes place with phenomena of streaming movement corresponding perfectly to those which go on throughout the body of an Amœba which streams in a simple manner; in these pseudopodia it is, therefore, merely a matter of local extension-currents, reaching over a short distance only."

Reasons are adduced against the very generally received view that the movements of the granules in protoplasm are merely passive, and, in support of the opinion of Nägeli, that they are automatic. The cause of the movements is, however, not that assumed by Nägeli, but more in accordance with that assumed by Quincke.

"The granules situated upon the limiting surface of two liquids—a viscid one, the protoplasm, and a more fluid one, the cell sap—move in all probability from the same cause from which pieces of camphor move to and fro continually on the surface of water. The cause in question is that the granules continually effect a change in the surface tension at the limiting surface of the two liquids in their vicinity, as a result of which they, of course, move towards the direction in which the surface tension is heightened."

Interesting suggestions in explanation of muscular contraction, and of the rotational currents in plant cells, bring the treatise to a close.

The value of this work depends not only on the vast mass of original observations and references contained in it, but also on the extensive critical review of the now very copious literature dealing with the structure and movements of protoplasm.

The translation of such a work as this must have been one of great difficulty, and for the manner in which it has been carried out we are bound to accord the highest praise.

The text is illustrated with drawings, and twelve beautifully-executed plates are appended. There is a good index, and the way in which the book is printed and brought out leaves nothing to desire.

Text-Book of Abdominal Surgery. By SKENE KEITH, F.R.C.S. Ed., assisted by GEORGE E. KEITH, M.B., C.M. Edinburgh and London: Young J. Pentland. 1894. Pp. 508.

NO fault can be found with the publishers for the manner in which they have brought out the book before us. It is printed in excellent type on good paper, and contains but few typographical errors, and these not of a very glaring kind, as, for instance, at page 72, where the pulse is described as being 140°.

We were impressed by the appearance of the book, which is neatly bound in green cloth, with gold lettering at the back and gilt edges at the top. We were still more impressed by the great name of Keith on the back, although we were aware that the world-famed operator was not the author. Under the spell, however, of the name, influenced by the seductive appearance of the work, stimulated by the title of this Text Book for practitioners and students, we began our reading with anticipations of a keen pleasure about to be enjoyed, almost, we might say, with enthusiasm. We must, however, confess that our enthusiasm was damped, and our anticipations were falsified before we had proceeded very far in our study.

We find the preface opens with the statement that "it is sometimes of advantage to systematise our knowledge of an advancing art, especially when it is one of recent and rapid growth. This has been the case with the Art of Surgery as applied to the Abdomen." Later on we read that "this volume is intended to show the present state of our knowledge of Abdominal Surgery." With the first paragraph we are, of course, in complete accord. As regards the second our agreement depends upon the limitation of the pronoun. If "our" refers to the authors alone we accept the statement without demur.

We do not pretend to say that there is not a great deal of valuable information in the book. The authors, whose professional relations with Dr. Thomas Keith have been "most intimate," extending over a period of seventeen years, could scarcely have written a treatise on this special subject in which we should not have found suggestions, advice, and records of experience of a most interesting kind and of considerable value.

What we are now more concerned to point out are the shortcomings which we did not expect to find when we took up the book.

While we fully concede that in a book on a technical subject, the "material" supplied by the author is of prime importance, and when this is also of prime quality, we can afford to forgive the "style" in which the valuable matter is clothed. Still the value of a book is enhanced, and the pleasure of reading it is enormously increased, when due regard is paid to orthography and the Queen's English. We must confess that in this Text-Book of Abdominal Surgery orthographical errors are innumerable, and the English is frequently laboured and difficult. A few examples which we shall give have not been specially selected. In one paragraph (p. 17) we find the following, which is certainly awkward:—"Cysts in the upper part of the abdomen cause a decided rising of the chest wall, and an indication will be given from which side the growth has arisen by the relative amount of this on the two sides." Lower down in the same paragraph:—"*The wave* which can be felt in all large collections of fluid in the abdomen . . . *is the impulse* which is given to the hand placed on one side of the abdomen when a slight blow is given to the other side." How can a wave be an impulse? Again, "When fluctuation is thus obtained the diagnosis of fluid is made *very easily*." We should have thought that the diagnosis of fluid had already been established. A "feeling of fluid" is thus described in the same paragraph:—"The two hands are placed firmly on the abdomen, and an impulse is conveyed to the one while the other remains firmly applied to the surface." We ask—How is it done? A very remarkable condition is described on page 19:—"Very rarely the abdomen may be distended by a large collection of fæces, the accumulation *being distributed generally over the whole of the abdomen.*" The italics, of course, are ours.

In discussing the preparation of silk, we are informed that "for safety, however, it is better to prepare it *more often.*" At an operation a tray is required "2½ inches in depth, into which the instruments and *stitches* can be placed." We thought the stitches should be placed in the wound (p. 43). In tubercular peritonitis we find "miliary *tubercules.*" As an instance of an awkward sentence we may quote the following (p. 116):—"When the peritoneum is opened (in gastrostomy) the stomach will, in all probability, be out of sight behind the ribs, the omentum or tranverse colon being found *presenting.* The stomach is reached either by drawing the omentum downwards, or by passing the fingers underneath the left lobe of the liver, crossing the spine, and there the lesser curvature is come on immediately below the diaphragm." We need not multiply instances. The reader will find many sentences in this book which will require to be read and re-read several times before the meaning of the authors is grasped. We would simply note, further, a point to which we take exception, and that is the too frequent use of the word "must." There are many methods of treatment which *may*, and sometimes *should*, but which *must* not, necessarily, be adopted. Thus, in the treatment of a case of fluid in the abdominal cavity without any apparent reason (p. 90), "the whole of the abdomen *must* be painted with Churchill's tincture of iodine" is a little too dogmatic, though it may be gratifying to Mr. Churchill.

The following directions, if given to a patient, might puzzle him considerably as to the course he was intended to pursue:—"To assist in the easy passage of a stone, and also to prevent their formation, ten grains of the bicarbonate of soda in a bitter infusion taken at bedtime *every alternate month* is advised."

We desire now to refer to a criticism which we believe will be obvious to any reader of this book. In the preface the joint authors inform us that "we might have contented ourselves with making a mere compilation and comparison of the observations and practice of others, for we have seen the abdomen opened by some eighty or ninety different operators; but we have preferred, while undoubtedly indebted to others, to draw very largely on our own experience and methods." It is doubtful whether in a "text-book" to which students and practitioners turn for the information they require the plan proposed by the authors is the best. It may be a subject for discussion, but undoubtedly the authors have a right to select the plan upon which their work is to be laid out. But how do they carry out their proposed plan? The book is "compiled" to a large extent of the "observations and practice of others," and comparisons are largely drawn between these and the "experience and methods" of the authors, and very much to the detriment of the "others." Moreover, these "others" are almost entirely anonymous. "A surgeon attached to one of the large hospitals" is quoted as making a disparaging remark about Apostoli's method of treating fibroids; "a well-known physician" makes a wrong diagnosis; an unnecessary exploratory incision is made by "a provincial surgeon;" "another surgeon" was at first inclined to think that a tumour was connected with the uterus, but changed his diagnosis to that of a renal tumour. Of course both diagnoses proved to be wrong. An exception to this method of dealing with the work of others is made in the case of Dr. Thomas Keith. We are glad it is so, for we should not like to have our faith in this eminent surgeon shaken by the criticisms, partial or impartial, of the joint authors. One of the references to this great authority is, however, somewhat comical, unconsciously so on the part of the authors. In describing the "Toilet of the Peritoneum," they inform us that "blood and fluid must be removed by sponging. This is what Dr. Keith learned at his first ovariotomy in 1862, but it was many years *before his example was followed.*" They then give the original notes of the case, in which "a small quantity of slightly bloody serous fluid was left in the cavity of the pelvis. . . . On the evening of the seventeenth day there was a gush of thin, dirty, serous-looking, very irritating fluid, to the amount of ten or twelve ounces. It was so fœtid that it was difficult to enter the room beside her." Subsequently the patient recovered. According to the English of the authors this was the example which was not followed for many years.

As another instance of the spirit which animates this book, we would refer the reader to pages 422–429. Under the heading of "Removal of the Ovaries," the authors discuss the question of what is the cause of menstruation. Ostensibly with the object of showing that the origin of menstruation does not lie in the ganglia on each side of the uterus, nearly seven pages are devoted to the history of a case, which, if we mistake not, has already been the subject of an animated and, shall we add, acrimonious correspondence in the medical journals between Mr. Skene Keith and Mr. Lawson Tait. Whether that be so or not, we maintain that such a history should find no place in a "text-book," and the object of its introduction is perfectly plain in spite of the thinly-veiled excuse which immediately precedes its recital. The same may be said of the case given on page 393.

In describing the various operations mentioned in the book, and especially when referring to the more recent or striking modifications and improvements which have been introduced, we notice what we would fain believe to be merely oversights. Credit is, with the rarest exceptions, refused to Englishmen of eminence whose names have been associated with any surgical advances. Reference is made to Emmet of New York, Homans of Boston, Mikulicz of Warsaw, Kœberlé of Strasburg (upon whom the authors confer the distinction of an extra final *e* to his name), and many others. The only place where an attempt is made to give the history of an operation, which of necessity must include the names of those who made the history, is in the case of ovariotomy. The history is, however, meagre. It begins with Ephraim M'Dowell of Danville (Ky.), Spencer Wells comes in for favourable mention, and the climax is reached in Keith. In such an historical sketch one is struck more by the names which are conspicuous by their absence. Why, may we ask, is Spencer Wells' name not mentioned in connection with splenectomy? Why is Witzer the only name to be found in the pages on gastrostomy? No doubt he suggested a very ingenious method of preventing leakage from a gastric fistula, but what comparison is there in importance between this and the method of operating in two stages, introduced by Mr. Howse, whose name is carefully omitted. These are not the only omissions which we note in a tolerably voluminous text-book. Many points of interest and facts of importance might easily have found a place, and yet the size of the volume need not have been increased, if the weary details of the daily progress of cases, many of which illustrate small points of no interest whatever, had been unsparingly excised.

Clinical Lectures on Subjects connected with Medicine and Surgery. By various German Authors. Third Series. The New Sydenham Society, London. 1894. 8vo. Pp. 397.

This book forms the 148th volume of the New Sydenham Society's publications. Its contents are both valuable and interesting. Some of the lectures, no doubt, are *clinical* but in name; nevertheless, the practical importance of their subject-matter justifies their publication in company with other lectures, which, if not actually delivered at the bedside, were suggested by bedside experiences and observations.

The list of authors includes names of world-wide repute—for example, Theodor Billroth, Heinrich von Ziemssen, Wilhelm Erb, Adolf Strümpell, and others.

The book opens with a monograph by the late Professor Billroth, on the Mutual Action of Living Vegetable and Animal Cells. This "biological study" occupies 50 pages, but the translator has done it only scant justice. The English rendering is often rough and uncouth, German idioms are preserved in the translation, and the author's meaning is sometimes obscure. All these faults are, perhaps, exemplified in the following sentence—"We know that the leucocytes behave exactly in the same manner as the amœbas, also when after their emigration they had been converted into pus-corpuscles by the trifoliated fission ('Kleeblattfurchung') of their nucleoli." (Page 15).

There are several mis-spellings of technical terms, such as "Pencillium" and "Parthogenesis"—both on page 10. In reference to a foot-note on page 11, we may state that "*βακτηρία*" (*a rod*) is not the Greek word from which "bacteria" is derived. The "collective term" *Bacteria* is in Greek *τὰ βακτηρία*, the plural of the diminutive *τὸ βακτήριον, a little rod.*

At page 37 the translator goes out of his way to give wrong information when he inserts the words "two pints" after "one litre." Neuter Greek nouns, like "carcinoma," sarcoma," "condyloma," and others, are made to end with the letter "s" in the plural, instead of "ta"—thus, "sarcoma" becomes "sarcomas" and not "sarcomata." This is the more noticeable as the translator does not attempt to Anglicise "meninges," or "cocci," or "bacilli."

We turn with a feeling of relief and pleasure to the second lecture in the volume—a clinical lecture on Neurasthenia and its treatment, by Professor H. von Ziemssen, Director of the Medical Clinic in Munich. It has been rendered into easy flowing English by Dr. Edmond J. M'Weeney, of Dublin. This statement will, we take it, be confirmed by quoting the opening sentences of what is indeed a masterly monograph on neurasthenia by the distinguished Munich professor:—

> "The era of civilisation in which we live has its distinctive pathological stamp conferred upon it by maladies of the nervous system, and above all by neurasthenia and mental diseases. Statistics have proved the quick increase of psychoses, and expression is given to the fact by the rapid multiplication of lunatic asylums. As regards neurasthenia, statistical demonstration of its increase in frequency is not forthcoming; but the experience of physicians, especially of such as enjoy a special confidence on the part of subjects of nervous disease, indicates quite an appalling frequency of neurasthenic conditions. The causes of this phenomenon are to be looked for in the rapid cultural development of our time. The immense advances all along the line of intellectual, political, and social existence could not have been made without an extraordinary tension of mental forces, and the preservation and development of these new acquisitions entail a continuous exertion, both intellectual and psychical, on the part of all civilised peoples. The more perfect, the more multifarious the functions of the politician, of the scholar, of the artist, of the merchant, of the artisan, the greater the requirements arising from the exercise and perfection of these functions, so much greater must be the measure of the demands made on the nerve force of the best men in the nation."

No one can read this lecture without being convinced that neurasthenia is a reality—a serious and a troublesome reality.

The third lecture in the volume is also from the pen of Professor von Ziemssen. It has been translated by Dr. A. M. Stalker, M.A., of Dundee, and forms a valuable contribution to the literature of the causes of tuberculosis. Full justice is paid by the author to the brilliant discovery of Koch, whose genius has shed a flood of light upon the "chaos of hypothesis and empiricism" with which the nature of tuberculosis had previously been enshrouded.

Dr. Fritz A. Salzer, Professor of Surgery at the University of

Utrecht, breaks new ground in his lecture on the "Healing-in of Foreign Bodies"—not that the subject is new, or that it has been neglected by surgical observers and writers—indeed, the author quotes a very long list of observations which have been recorded in past years. Dr. Salzer has not been very happy in his translator, and his pages are marred by such errors as "run" for "ran" (125), "cicatric," "jodoform" (which is, of course, the German form), "paremchyma" (more than once), "oxydation," "anchylosis" (for "ankylosis"), &c.

We can guess at the meaning of the expression "peripheric fragment" on page 130, but what are "uranoplastic operations," mentioned on page 145?

Professor Adolf Strümpell, the well-known Director of the Medical Clinic in the University of Erlangen, writes on "Traumatic Neuroses." His paper was originally delivered as an address to the Nürnberg Medical Society, on March 1, 1888. Under the title which he has chosen we recognise the "railway spine" of Erichsen and other English surgical writers, the "railway brain" of Walton and other American neurologists. Strümpell classifies the symptoms of the condition or disease under the headings—mental or psychical, sensory, motor, reflex, local trophic, and functional visceral, disturbances.

This address strikes us as one of the best expositions of the features of general traumatic neurosis that has ever been written. It concludes with a brief *résumé*, the closing words of which are full of warning—"Finally, general traumatic neurosis seems sometimes to prepare the ground for the development of organic lesions, such as paralysis or tumour."

There are two lectures by Dr. Alexander Peyer which are of peculiar interest. The first is on "Asthma and Diseases of the Generative Organs" (*Asthma sexuale*); and the second on the causes and treatment of severe and obstinate enuresis nocturna in males. The translation has some blots, such as "frequenter" for "more frequent" (page 277), "uro-genital tract;" but it is on the whole a well-executed and meritorious piece of work.

The other lectures in this volume are on Diabetes Mellitus, by Dr. B. Hofmeister, Primärarzt, Carlsbad; on Syphilis of the Nervous System, of Professor von Ziemssen; on Progressive Muscular Dystrophy, by Professor Wilhelm Erb, of Heidelberg; and on Recent Advances in the Treatment of Chronic Disease of the Spinal Cord, by Dr. L. Löwenfeld, of Munich.

According to Erb, progressive muscular dystrophy is by far the most common of all the progressive muscular atrophies. He accepts for its simplicity the division of the disease into the pseudohypertrophic, the juvenile, and the infantile forms.

It will be seen from the foregoing critical analysis that this volume is replete with interesting clinical details. There is, no doubt, a certain lack of editorial supervision, which is to be regretted; but, notwithstanding, the work is one well worthy of close and attentive study, and fitly takes its place in the library of the New Sydenham Society, which now numbers some one hundred and fifty volumes.

Index Pathologicus for the Registration of the Lesions recorded in Pathological Records or Case-books of Hospitals and Asylums. By JAMES C. HOWDEN, M.D. London: Churchill. 1894.

THE object of this index is to lessen the labour of research by affording a ready means of reference to the gross pathological lesions recorded in hospital records or case-books. The plan seems to be good, and the index will, we have no doubt, prove useful for the purpose intended.

Die Bedeutung der hypnotischen Suggestion als Heilmittel. Gutachten und Heilberichte der hervorragendsten wissenschaftlichen Vertreter des Hypnotismus der Gegenwart. Herausgegeben von Dr. med. J. Grossmann. Berlin, 1894.

IN this volume Dr. Grossmann, the editor of the *Zeitschrift für Hypnotismus*, in Berlin, has collected a number of statements, chiefly from medical men, and a few from jurists, as to the value and safety of hypnotism in the treatment of diseased conditions.

Among the authors we find many respectable names, as Beaunis of Nancy, Danilewsky of Charkow, Eulenberg of Berlin, Forel of Zürich, and others.

The editor writes an introduction, but neither in this nor in the writings of the other authors, is there anything which appears to us new.

The entire subject of hypnotism has of recent years been a good deal before the medical profession in this country, and, so far as our observation goes, it does not appear to advance in the estimation of the more sober-minded members of our craft.

Our own experience is too limited to justify the expression of an opinion, although what we have seen has not been calculated to raise our judgment of its therapeutic value.

The Common Forms of Dyspepsia in Women. By ROBERT SAUNDBY, M.D., Edin., F.R.C.P.; Physician to the General Hospital, Birmingham, &c. Birmingham: Cornish Bros. 1894. Pp. 32.

DR. SAUNDBY has succeeded in producing an eminently readable, thoughtful, and suggestive work on this most important subject. Having first alluded to the frequency of indigestion in women, and to the too-often unsatisfactory results of treatment, he proceeds to discuss its causes—"These stomach troubles originate almost invariably as a neurosis dependent on anæmia or over-work. The nervous defect shows itself most commonly, or in the first and simplest form, by depressing the motor functions of the stomach and intestine; secondly, by increasing the sensitiveness of the gastric mucous membrane; and, thirdly, by diminishing its secretion. But a condition that starts as a pure neurosis is apt to become more complex as time goes on: a pure motor defect causes delayed digestion, dilatation, fermentation, pain, flatulence, eructation, vomiting, and gastritis." Dr. Saundby does not share the opinion of those who see in excessive tea-drinking a common or efficient cause of any considerable number of dyspeptics among women, whose troubles result from over-work and anæmia. Tea will undoubtedly irritate a stomach in a state of sub-acute inflammation, and, therefore, it is possible that its prolonged and excessive use may set up some gastritis. But, as a rule, these women do not suffer from gastritis, and are not benefited by giving up tea. It may be said tea predisposes to nervous ailments, but he does not think there is any real evidence of this.

He next briefly describes the methods of physical examination of the stomach's contents. The salol test for the motor activity of the organ, the tests for lactic, butyric, and hydrochloric acids, and for pepsin are clearly described. Accounts of several typical cases are given.

The latter part of the book refers to treatment—rest, food, exercise, massage, &c., are all alluded to. The stomach tube as a means of treatment, Dr. Saundby says, is used too little in this country, too much in Germany. Lastly, drugs are discussed, and several useful prescriptions given.

If we may find any fault with this little book, it is for the rather scanty description of the symptoms from which Dr. Saundby's cases suffered. He describes the condition as Atonic Dyspepsia, but we wish he had set out a little more fully the differential diagnosis between this condition and Chronic Gastritis, into which, he says, it tends to merge. We are, however, much pleased with the sensible practical tone of the work.

The Johns Hopkins Hospital Reports. Vol. IV. No. 1. Report on Typhoid Fever. Baltimore, 1894. Pp. 167.

THIS number of the Reports is occupied exclusively with papers on typhoid fever. They are eight in number, of which six are from the pen of Dr. William Osler.

To May 15th, 1893, 229 cases of typhoid fever were treated—of these 22 died. The mortality is thus 9·6 per cent.; but since the introduction of the cold bath treatment the mortality has been only 7·1 per cent. In the second paper the highly interesting details of the treatment are given, particularly that by cold-bathing. This mode of treatment appears to be now carried out in the most complete manner at Baltimore, and to have given satisfactory results, in so far as the mortality shows a decided reduction. The bath at 65°–70° is given every third hour when the temperature in the rectum registers 102·5° or over. Each bath reduces the temperature one to three degrees. The former temperature is, however, regained within two hours. The effect is that of a tonic to the circulating system, and has a most beneficial effect on the nervous symptoms. Headache is relieved; delirium, stupor, and coma are rarely seen; the patient sleeps well and naturally, and tremor is of rare occurrence. The patient is described as put back into bed shivering and blue from the effects of the bath, with an imperceptible pulse. It is not to be wondered at that nine out of every ten patients object very much to the treatment. But notwithstanding this, and the great labour involved in carrying it out, Dr. Osler is so convinced of its advantages that he feels bound to persist in it.

A valuable analysis is given of the fatal cases, with full details of the *post-mortem* examinations. The causes of death in typhoid fever are grouped under three heads:—1. Asthenia, a result either of the rapid or slow action of the poisonous toxins, or a sequence of the severe diarrhœa. 2. Intercurrent affections, usually caused by an invasion of the weakened organism by other parasites, pneumococci, streptococci, &c.; and 3. Accidents of the lesion—erosions of a large blood vessel or perforation of an ulcer.

Of the 22 fatal cases 8 came under the first head, 4 under the second, and 10 under the third.

From the fourth paper, which gives an analysis of the special features, symptoms and complications, we take the following:—Diarrhœa occurred in only 33·2 per cent. of the cases. Relapses in 7·8 per cent. Distinguished from relapses are what is called "post-typhoid elevations of temperature." They were noticed in eighteen cases, all of which are recorded. Of them Dr. Osler says:—"During convalescence there may be a return of the fever for short intervals. Various temperature anomalies of convalescence must be carefully distinguished from these so-called recrudescences or post-typhoid elevations. It is important to recognise the fact that in young children and in very nervous subjects the afternoon temperature may be persistently above 99°. With a clean tongue and gaining strength, this may be neglected, and when strong enough the patient may be allowed to get up. Though really of no moment, the condition may be the cause of no little anxiety to the physician and to the friends. Then, again, a well recognised cause of persistence of the fever in convalescence has already been referred to in connection with the anæmia. Boils, too, may keep up a slight fever. Apart from these, and independent of complications and sequelæ, there are curious and not altogether well understood elevations of temperature. They are really of very great interest, inasmuch as their onset is apt to be regarded as a relapse." The belief in a specific disease—a hybrid of typhoid and malaria—is now given up. The diagnosis between the two diseases is not always easy in the early stages; but since the examination of the blood for the malarial parasite has been adopted in all doubtful cases, mistakes are much less common.

In 1889 Dr. Gibney of New York described a sequel to typhoid fever which he called the typhoid spine. This he regarded as a perispondylitis, "meaning an acute inflammation of the periosteum and the fibrous structures which hold the spinal column together." There is acute pain on the slightest movement, whether lateral or forward, with absence of any marked febrile disturbance or neuralgia. Dr. Osler describes three cases more or less resembling those of Dr. Gibney, but expresses himself rather doubtfully as to the affection, and thinks that Gibney has probably described cases which are not all of the same nature.

A long and elaborate paper by Dr. Thayer on two cases of post-typhoid anæmia, with remarks on the value of examinations of the blood in typhoid fever, is a valuable contribution to the literature of this disease. The absence of leucocytosis, and an increase of the large mono-nucleated white corpuscles, with a correspoding diminution of the multi-nucleated elements, are looked on as important in the diagnosis of typhoid fever from other febrile conditions.

Dr. Hewitson contributes a valuable paper on the urine and the occurrence of renal complications in typhoid fever. The following are his conclusions:—

> "1. The *general* physical and chemical characteristics of the urine in typhoid fever do not differ materially from those in other acute infectious diseases.
>
> "2. Although Ehrlich's diazo reaction cannot be said to be pathognomonic of typhoid fever, being absent in some undoubted cases, while it is occasionally met with in a number of other diseases, still its occurrence in the urine, when other suspicious symptoms are present, is of definite diagnostic value.
>
> "3. The marked increase in the quantity of toxic substances eliminated in the urine, during the course of a case of typhoid fever while the cold baths are being used, is of interest as offering a possible explanation of some of the benefits derived from the Brand method of treatment.
>
> "4. The presence of albumin in the urine during the course of typhoid fever, while of a very frequent occurrence, cannot be said to be a constant phenomenon. When present, it is generally found as a faint trace, but may exist in large quantities associated with many tube-casts, and occasionally with blood; then we have all the clinical features of a severe nephritis. This, however, even when of the acute hæmorrhagic type, may completely disappear, and would seem to be less frequently the cause of a fatal termination than has been generally believed.
>
> "5. The pathological changes found in the kidney in typhoid fever possess no characteristic or specific feature, being, in fact, those which may occur in any acute infectious disease. The evidences of parenchy-

matous changes in the kidney are constantly present, varying in intensity from slight degeneration to actual necrosis and abscess formation, and these are not infrequently associated with the presence of 'lymphomatous' nodules.

"6. The lesions in the kidney in typhoid fever present no etiological unity, but just as degenerative and inflammatory changes in the other parts of the body may be due to a variety of micro-organisms, so the renal lesions in this disease may be due to the typhoid bacillus itself, or to micro-organisms which enter the circulation through the diseased intestinal wall, or sometimes to bacteria which reach the kidney by a direct process of extension from the lower urinary passages; while there is good reason to believe that the toxic products of the bacteria themselves may cause most extensive lesions."

In the last paper on typhoid fever in Baltimore Dr. Osler discusses the means by which in his city typhoid fever is spread, the unnecessary frequency of the disease, and the measures required for its reduction. He demands pure water, good drainage, and a proper isolation of the sick. "Baltimore has a well-arranged water supply; still, however, with unprotected sources and a constant liability to contamination. It has nothing else—no sewage system, no system of isolation of the sick, no hospital for infectious diseases, no compulsory notification of such a disease as typhoid fever, no disinfecting station, no system of street watering, no inspection of dairies, no inspection of meat. The streets are cleansed, but so carelessly that for a large part of the year the citizens breathe a mixture of air with horse-dung and filth of all sorts." The deaths from typhoid are 4·8 of 10,000 inhabitants on an average of five years—1880–84—against 2 for Boston, 2·3 for London, 3 for New York, and 1·5 for Brooklyn. The number is small, however, as compared with Paris, 9·9; Riga, 15·9; and Catania, 19.

It will be seen that in interest and importance this number of the Reports fully maintains the high character of those which preceded it.

Asexualisation for the Prevention of Crime and the Arrest of the Propagation of Criminals. By F. L. SIM, M.D., Memphis, Tennessee.

UNDER the above heading Dr. F. L. Sim, of Memphis, Tennessee, has published an appeal to his fellow-citizens for the discontinuance of capital punishment for the crime of violation. The doctor adduces many and cogent arguments against capital punishment, markedly drawing attention to the fact that many have undergone the sentence who were innocent of crime. That an innocent person should suffer death from a fault in the legal process is deeply to be regretted; but the fact points more to the necessity for making right the executive forms of the legal machine—making it more trustworthy and accurate—than the discontinuance of capital punishment.

No spirit of revenge dictates the taking of the life. The sentence is supposed to produce a deterrent effect on the criminal class in the community, and to prevent the criminal afterwards breeding a progeny of criminals. This latter capital punishment effectually does. But does it produce a deterrent effect on criminals? To answer this off-hand we cannot—there are not sufficient data. The discontinuance of capital punishment in England for all crimes other than murder and high-treason was not followed by an increased number of offences. A woman was hung in England for stealing a 4d. handkerchief; it was felt that the law was too severe, and public opinion demanded its change; no evil results followed. Each succeeding age finds civilised people more and more inclined to mercy and law makers more bent on reform than punishment.

All these changes in the direction of mercy have been made amongst civilised peoples. Their most brutalised members cannot efface all the hereditary instincts for good of the Aryan. Aryan people have a potential goodness which it is possible to rouse into activity. Aryan cerebration prevents the automatic response to temptation. Have you any such factors working for good in niggers? We fear not. He has not known responsibility for his acts to any marked degree. On Southern plantations he found life easy in spite of the hysterics of Boston Abolitionists. He knew no care. Well fed, comfortably clothed and housed, he devoted his evenings to music. All the sweet plaintive negro melodies were the works of Southern niggers, and through all of them there breathes a love of home, "massa," and the "ole dominion." These songs became popular in every plantation—popular because they reflected the thoughts of the singers; and their popularity proves that the singers were a contented and happy community. War came, and a vile proclamation called on domestics to turn their hands against those who fed them as children and supported them in their old age. But the domestics had had long experience of the planter and his family, and for four years the women and children of the South were safe amidst the niggers.

A new race has risen, who experienced nothing of the planter's kindness, and knows of the *ante-bellum* life from Abolition stories. Niggers of to-day find the battle of life in the world not a holiday task; their inferiority in every calling that demands intelligence and originality is forced on them. They have to recognise that God did not make all men equal; and they have become sour in temper and aggressive in bearing; all music has left their souls; no longer is the air filled in the nigger quarter with sweet melodies; but, instead, we get the blatant oratory of the hireling politician. Instead of being made reasoning creatures, niggers are being made more and more emotional. He will show his equality and hatred of the white by criminal acts. Violation of children gives outlet to his lust and his revenge. Should he be shot; or, as Dr. Sim pleads, be castrated? Will a nigger suffering from satyriasis be deterred from the crime of violation by the knowledge that he will suffer capital punishment if the crime is perpetrated? We think not; for we consider satyriasis as a symptom of morbid excitement of the sexual functions, with an irresistible tendency for coition—a true madness. If we are right in this the proper remedy is confinement for the insane man. But there are cases where the impulse is not irresistible; and in such cases occurring in an inferior race we incline to the opinion that the purity of the higher race and the control of the lower demand the death of the criminal. A castrated negro might wander over the length and breadth of the land without being recognised as such, and consequently produce no deterrent effect on his fellow-niggers.

Year-Book of the Scientific and Learned Societies of Great Britain and Ireland, comprising Lists of the Papers read during 1893 *before Societies engaged in Fourteen Departments of Research.* With the Names of their Authors. Compiled from Official Sources. Eleventh Annual Issue. London: Charles Griffin and Company, Limited. 1894.

The title of this book sufficiently indicates its nature and purport. The work is well done, well arranged and classified—indeed every facility is given for finding the desired information. For those engaged in literary work or in the production of a paper on some special subject the book is of great service. Even the casual reading of the book is productive of benefit as showing how the current of the scientific world flows.

All concerned in its production—editors, printers, and publishers—are to be complimented on their excellence of work.

Formulaire des Médicaments Nouveaux et des Médications Nouvelles pour 1894. Par H. BOCQUILLON-LIMOUSIN, Pharmacien de la 1re classe, Lauréat, Médaille d'Or de l'École de Pharmacie, Membre des Sociétés de Pharmacie et de Thérapeutique. Avec une introduction par Henri Huchard, Médicin de l'Hopital Bichat. 5^{e} édition, revue, corrigée, et augmentée. Paris: Librairie J. B. Baillière.

A GOOD and useful book is a delight to the reviewer. He feels grateful to the author, who, having something to say, says it well and briefly, and who produces a book which adds to our knowledge. To such a feeling of gratitude we own for M. H. Bocquillon-Limousin. He has brought together all the essential facts of our new remedies, and those who try and follow the literature of the synthetical chemical compounds will find in the little book before us a very complete summary of all that is known of them. Besides this we have an account of the new methods of treatment and the notice of any new therapeutic use of the older drugs.

The arrangement is alphabetical. Besides this facility for reference there is a full index.

All the animal products (and they now are numerous) find a place in this excellent work. Vegetable products are very fully described. Commencing with their synonymes, he passes on to describe their botanical characters, habitat, part employed, preparations, therapeutic properties, and dosage. Synthetical compounds have their empiric formula, mode of preparation, physical characters, history, therapeutic properties, and dosage described.

Every prescriber who wishes to keep pace with therapeutic progress and desires a reliable guide in the selection of new remedies, should possess a copy of the "Formulaire des Médicaments Nouveaux."

PART III.

SPECIAL REPORTS.

REPORT ON NERVOUS AND MENTAL DISEASE.[*]

By Ringrose Atkins, M.A., M.D.; Resident Medical Superintendent, District Asylum, Waterford.

(Continued from page 67.)

III. NEURO-PATHOLOGY AND PATHOLOGICAL ANATOMY.

Psychical Disturbances in Diabetes.—The number of nervous complications which occur in connection with diabetes mellitus is very great—*i.e.*, paralysis of limbs more or less complete, disturbance of speech, alterations in sensation, paralysis of the ocular muscles, neuralgic affections, epileptiform convulsions; yet none of these can be considered as pure accidents or coincidences occurring during the course of the primary disease, but must be taken as standing in direct relationship to it. Dr. Jerzykowski (*Nording Lekarski*, 1893, Heft 7, abstr. in *Allgemein. Wiener med. Zeitung*, No. 136, 1893) has published an article on the psychical disturbances occurring in patients suffering from diabetes, of which he has observed several cases. In one patient, a man aged fifty, there was profound melancholia, with attempts to commit suicide; and in another, an old woman, there was also melancholia. In a third case, that of a widow aged sixty-one, there was also considerable mental disturbance. In none of these cases was there any hereditary tendency to insanity. As another instance of the relationship between diabetes and mental affections, Dr. Jerzykowski draws attention to the glycosuria which sometimes occurs after sudden mental shock. With regard to the question whether the psychical phenomena are primary or secondary to diabetes, he maintains that in a large proportion of cases they are complications of the disease. He states that the most common of these phenomena are alterations in the intellectual powers of the special senses and of memory. The cases above noted, of melancholia, are not so often met with.

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[*] The author of this Report, desirous that no contribution to the subject of Nervous and Mental Disease should remain unnoticed, will be glad to receive any publications which treat of it. If sent to the correspondents of the Journal they will be forwarded.

Some little time since I had under observation a gentleman suffering from Neurasthenia, with well-marked mental depression and psychic restlessness, accompanied by glycosuria, and followed by rapid emaciation and muscular feebleness. As the neurasthenic condition improved, the glycosuria disappeared *pari passu*, and eventually recovery of nervous and muscular power ensued, and the urine became entirely free from sugar.

The Relation of the Patellar Tendon Reflex to some of the Ocular Reflexes found in General Paralysis of the Insane.—Dr. Charles A. Oliver, of Philadelphia, contributes the following conclusions on this subject to the Transactions of the Annual Meeting of the American Ophthalmological Society for 1893. The conclusions arrived at are drawn from a series of observations made on a large number of cases of male patients suffering from general paralysis of the insane, under care at the State Hospital for the Insane, Norristown, Penn. Although tentative in measure, and not to be found in an equal degree in each individual case, yet by reason of a combination of a large series of similarly related groupings, these observations may be justly offered as showing the relationship existing between the patellar tendon reflexes and the ocular reflexes in this disease.

1. In some of the cases in the second stage of the disease, especially when the patellar tendon reflexes were unequally exaggerated, there appeared to be an irregular and unequal spastic innervation of the two irides causing irregularities in pin-point pupil forms.

2. In a few cases, especially in the third stage of the disorder, when the patellar tendon reflexes were unequally diminished, and the pupil size though small and its shape somewhat irregular, the iris seemed to be acted upon but little by any powerful mydriatic.

3. In many cases, especially in comparatively young subjects in the third stage of the disease, when the patellar tendon reflexes were unequally diminished, there appeared to be an unequal paralytic innervation of the two irides; the papillary dilatation manifesting itself at times, though not, as a rule, in the eye, with the greater amount of objective optic nerve-head degeneration and retinal change.

4. In a few cases, especially in men beyond middle life in the

third stage of the disorder, when the patellar tendon reflexes are markedly diminished, and when the ataxies were quite pronounced, there were marked temporary asymmetries of pupillary form, one often being quite small and irregular for several examinations, while its fellow was large and ovoid or oval.

5. In quite a number of cases, especially in the advanced stages of the disease, when the patellar tendon reflexes were either unequally exaggerated or diminished, there was a failure of the irides to respond to even major degrees of light stimulus, this being true not only for those subjects exhibiting a true spastic myosis, but more especially shown in those instances in which, with dilatation of the pupil, mydriatics failed to act.

6. In many instances, especially in the older cases, when the patellar tendon reflexes were, as a rule, unequally diminished or even lost, there was not only failure of iris response to the strongest light stimulus carefully thrown upon the retina, but, when obtainable, the irides seemed to fail to react to the various coarse and rough subjective and objective procedures necessary to be used in order to evolve both separated and associated efforts for accommodation, and associated efforts for convergence.

7. In some instances, where ciliary muscle innervation could be satisfactorily obtained, both the spastic excitation and the paralytic innervation at times found by subjective reading tests and objective study with the retinoscope, seemed to be in direct ratio with the patellar tendon reflexes, as the iridic changes.

8. In quite a number of cases, where there was marked inequality of the pupils, with more or less want of reaction of the irides to light stimulus, the patellar tendon reflex on the side of the larger pupil seemed to be the more greatly diminished.

9. In a number of instances, especially during the very earliest stages of the disease, when the patellar tendon reflexes were beginning to lessen in unequal degree, there often appeared momentary secondary ataxic dilatation of the pupil during exposure to strong light stimulus.

10. In many cases, especially during the second stage of the disorder, when the patellar tendon reflexes began to become irregular and inconstant, pupillary inequalities as expressive of unequal iris innervation and action became more and more constant.—(*Am. Journ. of Insanity.*)

Akinesia Algera.—At the meeting of the Neurological Society of Kazan, March 23, 1893, Bechterew reported the case of a soldier, twenty-three years of age, who, ten years previously, received an injury and a fright from the passage of a vehicle over his feet. He lost consciousness and was laid up for about two weeks. From this time on he noticed diminution of cutaneous sensibility, with muscular pain and weakness of the legs in walking. At the age of fifteen he became subject to somnambulism, which lasted two years. Of late he had suffered from a feeling of lassitude, indisposition to work, and attacks of stupor. He had twice been sent to the military hospital and returned for lack of objective symptoms; finally he had been admitted to the section for nervous diseases. At present there is complete analgesia of the skin with absence of tactile, thermic and electrical sensibility. Taste, smell, and sight are enfeebled, and there is retraction of the visual field, but colours are perceived. The muscles are extremely sensitive to pressure or percussion; slight compression of any muscle, not excepting those of the tongue, is painful. Movement, whether active or passive, is also painful; walking is very difficult, and can be kept up only for a few steps. Muscular sense is wanting but there is no ataxia, and no loss of equilibrium. The tendons and bones are also painful on pressure; knee jerks are normal, and there is no foot clonus. Muscular power is greatly enfeebled. He suffers from insomnia, loss of appetite, headache, sense of compression on the chest, attacks of palpitation and general weakness. Usually the patient remains in bed. The author does not believe the hyperæsthesia to be of psychical origin, at least exclusively. He refers to a description of a similar condition by Moebius in 1891, under the name of akinesia algera.—(*Revue Neurologique*, May 30, 1893.)

Case of Aphasia with Left Hemiplegia.—This case was reported by Moltchanoff to the Moscow Neurological and Psychiatric Society. The patient, a man of intemperate habits, had a paralytic attack two years before his admission to hospital, which left him with left hemiplegia, amnesic aphasia with word deafness. It was ascertained that he had always been right-handed previously to the attack. At the autopsy two foci of softening were found in the right hemisphere, one occupying the posterior part of the first temporal convolution, the other in the third frontal. No lesion was found in the left hemisphere.—(*Rev. Neurologique.*)

Cases of Hemiplegia without Focal Lesion of the Brain.—Jacobson, *Hospitals-Tidende*, 1893, reports six cases of this kind occurring in the Copenhagen Communal Hospital:—

1. A previously healthy man, sixty-five years old, awoke one morning with complete paralysis of the left side. There were also slight giddiness, headache, and impairment of speech. On reception the temperature was normal, the pulse of high tension, the face congested; there was Cheyne-Stokes respiration with mental dulness, left hemiplegia, involving the lower facial region, arm and leg. The patient grew steadily worse and died within a week from the onset of the hemiplegia. At the autopsy, atheromatous degeneration of the arteries was found; there was no other lesion of the brain.

2. A woman, aged seventy-two, suffering from chronic bronchitis, had a sudden attack of giddiness with transient hemiparesis. Two months later she had another attack of giddiness with permanent left-sided hemiplegia. Death occurred two months later from pneumonia. The cerebral convolutions were somewhat atrophic, and the vessels slightly atheromatous, otherwise the brain was normal.

3. A man, aged seventy, was brought into the hospital in a demented condition with left hemiplegia. The reflexes were absent; contraction of the fingers occurred. Death after a few weeks. The only lesion found was sclerosis of the arteries with anæmia of the brain and its membranes.

4. A woman, sixty-seven years of age, who had probably suffered from syphilis, after showing for several days slight cerebral symptoms, had a series of epileptiform convulsions, chiefly affecting the left side. These were followed by left hemiplegia, and albuminuria. Coma and death occurred in twenty-four hours. The arteries were sclerotic, the brain and membranes otherwise healthy.

5. A boy, fourteen months old, who had suffered for some time from pulmonary tuberculosis, was found one morning to have left hemiplegia. There was deviation of the head to the left, and convergent strabismus of the left eye. The reflexes of the left side were impaired. Death took place in twenty-four hours. There was nothing abnormal found in either the brain or its membranes.

6. A man, twenty-eight years old, previously healthy, had a series of eclamptic attacks, the convulsions chiefly affecting the right side. After one of them he had right hemiplegia with abolition of reflexes and elevation of temperature in the paralysed limbs. The attacks diminished, but he died after ten days; the elevation of temperature continued, and there was albuminuria

during the last days of life. There was nothing pathological found in the brain.

The author has collected thirty-two similar cases in medical literature, most of which occurred above the age of sixty. Twelve developed in entirely healthy persons; ten suffered from uræmia; the remainder from pulmonary tuberculosis, pneumonia, arthritis, lead-poisoning and puerperal infection. In the previously healthy persons, all of whom were between the ages of sixty-three and eighty-five years, the vessels, so far as stated, were atheromatous. The author suggests inequality of blood pressure in the two hemispheres as the explanation of the hemiplegia.—(*Centrlbltt. f. Nervenheilk*, June, 1893.)

Pachymeningitis Interna Hæmorrhagica.—Dr. Bristowe, in the *Journal of Mental Science*, reports two cases of this condition occurring in the Somerset and Bath County Asylum. Both patients were middle-aged men, and presented the clinical features of general paresis. The first died from convulsions. At the autopsy, the dura mater was found to be adherent to a sac containing apparently fresh blood which covered the whole lateral and upper surface of the brain, with the exception of the median area. The sac was also adherent to the thickened pia mater, to which it was connected by fibrous processes containing blood vessels. The membrane composing the sac was found, on microscopical examination, to be composed of fully-developed vascular fibrous tissue, destitute of epithelium. It contained no crystals of hæmatoidin, and there were no signs of old clotting.

The second patient died after gradually developing coma, preceded by clonic spasms of the left arm. *Post mortem.*—A sac of false membranes was found on each side of the brain, covering the frontal parietal and occipital lobes, on the upper and lateral surfaces, with the exception of the parts immediately adjoining the longitudinal fissure, and slightly adherent to the pia mater. The left sac contained fluid blood with a few recent clots. That on the right side contained only a few drachms of colourless serum. The false membranes on this side were very thin and semi-transparent. On microscopical examination it was found to be only slightly vascular. The other was more vascular; was blood-stained, but contained no trace of hæmatoidin or clot. In this case there were no large vessels leading from the pia mater. The author discusses the view that this condition is due to compensatory hæmorrhage after shrinkage of the brain, and concludes that the appearances in these cases are inconsistent with it, especially in the second, in which the colourless sac presented no evidence of having ever been in contact with blood.

Porencephalus without clinical symptoms.—Biroulla reports in the *Messager de Psychiatrie et de Neuropathologie* the autopsy of a soldier who died of peritonitis. He was physically able-bodied, fairly intelligent, could read and write, and was not left-handed. On opening the cranium there was found a partial atrophy of the left cerebral hemisphere with porencephaly. The left hemisphere weighed 129 grammes less than the right; the atrophy involved the ascending convolution and the adjacent parts of the frontals, and a tunnel-shaped focus of sclerosis was situated at the intersection of the supernal, frontal, and paracentral sulci. It did not communicate with the lateral ventricle. The parietal, temporal, and occipital lobes were normal. On section numerous irregular cavities, ranging up to 2½ cm. in diameter, were found in the cortex and white substance; they were most numerous in the pons and ganglia. Histological examination failed to show any connection between the cavities and the focus of sclerosis. The descending degeneration could not be traced below the decussation of the pyramids. The sclerosis was considered to be of vascular origin; the cavities, which were bounded by entirely healthy tissue, to be dilated lymphatic spaces.

The Ætiology of General Paralysis.—Dr. Emil Hougberg, Assistant Physician in the Asylum of Lappvik, near Helsingfors, in Finland, has made an important contribution to the question whether general paralysis is caused by syphilis, which appears in the *Allgemeine Zeitschrift f. Psych.*, l. Band, Heft 3 und 4. The author remarks that one group of psychiatric physicians, including most of the French, do not give any high importance to syphilis as a cause of paralytic dementia, laying more stress on the abuse of alcohol, excess in venery, and injuries to the head. Dr. Hougberg objects that those who support this view do not take sufficient pains to make sure whether their patients really have had syphilis or not. On the other hand, the psychiatric physicians of Scandinavia and Finland hold that general paralysis is a disease entirely caused by an earlier infection of syphilis. The German alienists, with Mendel, for the most part take a middle position. Though they admit that syphilis is an important factor in the production of so-called paralytic dementia, they do not consider it to be its sole cause.

Dr. Hougberg's own observations were made upon 107 patients, 98 of whom were males and 9 females. He found syphilis to have been undoubtedly present in 81 per cent. of his cases, and probably so in 11·2 per cent.; thus raising the proportion to 92·2 per cent. This is the highest ratio recorded by any observer, save Dengler, who found syphilis in 28 out of 30 cases, equal to 93 per cent.

Dr. Hougberg arrrived at the following conclusions:—

1. General paralysis is a disease which especially affects the town population of Finland. It does not affect women of the better classes.

2. The importance of syphilis as a factor in progressive paralysis seems to be very great, especially when we consider that venereal disease plays no large part in the causation of other forms of insanity.

3. General paralysis, which comes on most frequently between the ages of thirty and forty-five years, makes its appearance from four to five years after the syphilitic infection.

4. The symptoms of constitutional syphilis which precede general paralysis are of a mild character.

5. Compared with syphilis, the other assigned causes, such as hereditary predisposition, affections of the mind, abuse of alcohol, and excess in venery, play but a subordinate part.

6. In paralytic dementia, known to have followed syphilis, there were no distinctive symptoms from the cases in which syphilis was presumed to be absent. No benefit was derived from anti-syphilitic treatment, nor were any alterations of a specially syphilitic character found on examination.—(*Journ. Med. Sci.*)

Sclerosis of Hippocampus in Epilepsy.—Dr. Fischer (*Neurol. Centralblatt*, No. 1, 1893) has carefully studied two cases in which alterations of the hippocampus major were observed in epileptics. The first patient had suffered from fits from his seventh year, till he became demented and died at the age of fifty from phthisis. On examining the brain there was noted an extensive atrophy of the convolutions of the frontal and occipital lobes on both sides. This atrophy, however, was more extensive on the left side, and involved the left cornu ammonis. This supports the view of Wundt, who regards the atrophy and hardening of the hippocampus in epileptics as dependent upon the asymmetrical enlargement of the lateral ventricle. This he regards as the result of the disturbance of the circulation which accompanies all epileptic fits. The left cornu ammonis is more often atrophied than the right. Both are rarely affected at once. The second case described was a weak-minded patient, who suffered from epilepsy from the fourteenth till the twenty-second year of his life. The brain was infiltrated with serous fluid, especially on the left side. There was softening of the left hippocampus. The lateral ventricles were also full of fluid, and both of them enlarged; the left ventricle was larger than the right. Dr. Fischer regards this as a further confirmation of Wundt's views.—(*Journ. Ment. Sci.*)

Localisation of Cutaneous and Muscular Sensibility in the Cerebral Cortex.—Déjerine has reported a case bearing on this subject. The patient, a vintner, aged sixty-six, sustained an attack of left hemiplegia, on the night of June 25, 1889. When examined on the following day the arm was completely paralysed—the leg much less so—the patient being able to raise it above the bed, and to stand and walk a few steps without support. There was no rigidity, and the knee-jerk was less active on the paralysed side. There was absolute anæsthesia, analgesia, and thermo-anæsthesia of the upper extremity. In the remainder of the paralysed side touch, pain, and temperature were less distinctly perceived than in the healthy side, but far from being abolished. All the special senses were intact. The sense of position was much impaired in the arm; slightly in the remainder of the paralysed side. In the course of the disease contractures supervened; there was slight diminution of the anæsthesia. Death ensued December 11, 1889. The autopsy revealed extensive superficial softening of the right hemisphere involving the posterior three-fourths of the second and the immediately adjacent parts of the first frontal convolution, the two central convolutions, with the exception of a small portion at their upper extremities; the lower part of the superior parietal, the whole of the inferior parietal, with the gyrus angularis, and the posterior three-fourths of the first temporal. The paracentral lobule was not involved. Horizontal section of the brain showed that the softening was deepest beneath the gyrus angularis and the second frontal convolution. The basal ganglia were not directly involved, but there was secondary atrophy of the optic thalamus, the anterior three-fourths of the portion of the internal capsule, posterior to the genu, and the motor tracts in the peduncle, pons, and medulla.

The author believes that the anæsthesia must be connected with the lesions of the central convolutions, as lesions of the other parts of the cortex involved do not affect general sensibility.—(*Revue Neurologique,* 1893.)

Hæmatoma Auris.—Dr. W. P. Tischkow, working in the laboratory of Mierzejewski (*Allgemeine Zeitschrift,* xlix. Band, 4 Heft), made a study of hæmatoma auris in five cases of general paralysis and one case of hebephrenia. He holds that there are several kinds of swelling of the ear distinguishable from the form peculiar to insanity (othæmatoma verum). Tischkow describes four stages in this affection: the period of effusion of blood, which lasts only some hours; that of absorption, which is often retarded by new effusions of blood; the period of degeneration; and that of contraction of the new deposit attended by contraction of the whole ear. The course of the hæmatoma when treated on the expectant method lasts about six weeks. He considers the appearance of this affection of the ear in general paralysis as a bad sign. In such cases a remission of the general symptoms is not to be counted on. Tischkow observed that the effusion of blood is preceded by a new growth of vessels beginning from the perichondrium and invading the body of the cartilage. The giving way of these vessels is the cause of the effusion of blood. The nutrition of the cartilage then becomes affected, the elastic fibres take a dull colour, there is fatty degeneration of the cells and partial necrosis of the cartilage. As the effused blood lies in the dilated cavity of the cartilage the conditions are unfavourable to absorption, hence this period lasts long. In two cases of general paralysis Tischkow observed the formation of new vessels without any effusion of blood. In another case he noted the disappearance of the elastic fibres also without any effusion. Tischkow thus considers that the cause of othæmatoma lies in a peculiar affection of the cartilage which is especially found in general paralysis. The view that the hæmatoma may be caused by external injury he regards as quite unfounded. Even as an exciting cause external injury plays a small part.—(*Journ. Ment. Sci.*)

IV. NEURO-THERAPEUTICS.

Treatment of Myxœdema and Cretinism.—Dr. Beadles has recently published in the *Journal of Mental Science* a review of the literature of the treatment of these conditions by means of the thyroid glands of animals, with a table of one hundred published cases, and histories of four cases which had been under his observation at Colney Hatch Asylum, of which two were very greatly benefited, and the other two distinctly improved, although the benefit in their cases was not so great as in the first two. The latter cases were comparatively recent, and he is inclined to believe from his experience with them, as well as from cases reported elsewhere, that more is to be expected from this treatment in old than in recent cases. The results of the treatment, as shown by the reported cases, are most encouraging, often amounting to a practical cure of the disease. The hypodermic injection of an extract of the gland, and the administration by the mouth of the glands themselves, and of liquid and dry extracts, all have proved efficacious. In view of the formerly hopeless prognosis in this disease, the results obtained by this treatment must be considered a great triumph of therapeutics.

Treatment of Epilepsy.—In the *Liverpool Medico-Chirurgical Journal*, Dr. Alexander utters a word of warning against the indiscriminate use of bromides in cases of epilepsy. In the majority of cases no other drug is so efficacious, and it is only in rare cases that it is completely contra-indicated. Dr. Alexander has observed good results from the combination of borax with bromides, especially with bromide of sodium. In twenty-six cases in which the combination was administered, the fits were arrested for several months in nine cases; in seventeen they were diminished in frequency; while in one the attacks were uninfluenced; and in another they became more frequent. But perhaps the benefits of this treatment are more uniform in regard to the mental condition of the patient. Even in those who were subject to post-epileptic mental disturbance, and in others who remained dull and stupid for several days after a fit, the mental disturbances entirely disappeared. There are, however, certain drawbacks to the administration. The full dose sometimes produces gastric troubles, flatulence, and loss of appetite. But this inconvenience is usually got rid of by care in administering the drug after food, and by caution in increasing the dose gradually. Skin eruptions may be also produced, especially after continuous administration for some time. These may be accompanied by intolerable itching, but the eruptions are said to subside, usually even without discontinuing the use of the drug. Loss of hair, which may be complete, is a much more serious inconvenience. Dr. Alexander's experience seems to comprise that of previous observers in regard to the efficacy of borax in certain cases of epilepsy.

Sedative Action of Duboisin Sulphate in Insanity.—Marandon de

Moutyel reports on thirty-five cases in which he has administered this drug during the day for its sedative effects. Eleven of the patients were general paralytics, ten maniacs, and fourteen melancholics. It was administered hypodermically in two equal doses at 9 a.m. and 3 p.m. The daily dose varied from two to four milligrammes. In twenty-two cases the administration was continued more than a month.

The author finds duboisin to be a true sedative, causing in a large proportion of cases cessation of excitement without paralytic symptoms, such as follow the use of hyoscyamin. It seems to require the quiet of night for the exercise of its unquestionable hypnotic properties. Administered as above described, the patients at the most took a nap for an hour or two in the middle of the day; in many cases maniacal excitement disappeared as if by enchantment, and the patients assisted in the work of the ward. Its quieting effects continued in a number of cases for several weeks after the cessation of its administration. Drawbacks to its use are—the occurrence of toleration in a certain proportion of cases, when increase of the dose does not produce the original effect; dilatation of the pupils with dimness of vision; dryness of the throat, bad taste in the mouth, loss of appetite and nausea, and, after prolonged use, failure of nutrition with progressive emaciation, making it necessary to suspend the use of the drug. Duboisin proved most efficacious in general paresis; then, in acute melancholia and chronic mania, cases of acute mania were not, with one exception, benefited by it, and it was comparatively of little value in chronic melancholia. The author considers it a drug of great and unique value.

In the *Allgemeine Zeitschrift f. Psych.*, XLVII. Band, Ostermayer, of Budapest, published some experiments on the sedative and hypnotic properties of atropin and duboisin. Like atropin and hyoscyamin, duboisin belongs to the class of drugs which dilate the pupil—mydriatics. It comes from the sap of the Duboisia myoporoides, a bush or small tree growing in Australia. The natives are aware of its stupefying properties, and put it in ponds to intoxicate the eels and make them rise to the surface. Gerrard discovered the alkaloid in 1878. Duquesnel showed how to crystallise it in 1880. It is a brownish substance, sparingly soluble in water but readily dissolved in alcohol, ether, or chloroform. It has a close resemblance to hyoscyamin. Ostermayer found that one milligramme of duboisin, given in two separate doses to a man, in two hours induced drowsiness, delirium, starting in the limbs, hallucinations of sight, and increased rapidity of the pulse and respirations. Ostermayer tried this drug on thirty insane patients in maniacal conditions. He arrived at the following conclusions—That sulphate of duboisin is like hyoscin, a prompt and powerful sedative, when used in the excited states of mental disease, without the accompanying disagreeable effects of hyoscin. This sedative effect appears in about ten or fifteen minutes. Duboisin is also a hypnotic, inducing sleep in most cases in from twenty to thirty minutes, when the excitement is very great. Ostermayer recommends a dose of from 2 to 3 milligrammes, but when there is simply sleeplessness, 1 to 1½ milligrammes are sufficient. No symptoms of intoxication or disagreeable after effects were noticed to follow the use of the drug. Its influence is lessened after continued use, but on being discontinued for a time the susceptibility returns. Ostermayer thinks that duboisin might be advantageously substituted for hyoscin, especially when there are affections of the heart and vessels. It is also less expensive than hyoscin.

Vladimer Preininger, of Prague, in the *Allgemeine Zeitschrift*, XLVIII. B., Heft 1 und 2, publishes his observations of the use of this drug on twenty-six men and twenty-three women in the asylum in that city. He confirms the results arrived at by Ostermayer as to the efficacy of duboisin in subduing excitement. To ensure sleep doses up to 2 milligrammes must be administered. He found that the sleep seldom lasted more than two or three hours. After doses of from 0·0025 to 0·003 gramme symptoms of intoxication were observed; motor restlessness, chronic spasms of the extremities, increased frequency of the pulse and respirations, headache, weakness, and visual hallucinations. Preininger is inclined to think that peculiarity of constitution has its influence in the patient becoming accustomed to the drug, and the degree in which he is affected by it. The Italian patients on whom duboisin has been tried seemed to require smaller doses than the Germans.

Näcke, who has made some careful experiments on the use of sedatives, especially chloralamide, hyoscin, and hydrate of amyl, attracted by the papers of Ostermayer, Gellhorn, Lewald, and Preininger, commenced to try duboisin sulphate (*Allgemeine Zeitschrift*, XLVIII. Band, Heft 6). He had found hyoscin in small doses to have no effect, and in large doses to be dangerous. He made a number of methodical experiments upon the efficacy of duboisin with forty women affected with chronic insanity, and administered in solution by the mouth 1,952 times. The doses used were from 1 to 2 milligrammes. In 71 per cent. of his cases sleep was induced in half an hour, and generally lasted from one to two hours. The pulse was unaffected. In some cases there was marked mydriasis, which lasted for several hours. He found the appetite was often affected, which other inquirers had not noticed. Occasionally drowsiness, weariness, giddiness, or reeling followed the administration. He came to the conclusion that duboisin possesses at least as great sedative and hypnotic properties as hyoscin, and is much less dangerous. As its soporific effects do not last long it is thus useful to subdue fits of excitement or exacerbations of short duration.

Dr. E. Mendel has also made trial of the drug, and in the *Neurol. Centralblatt*, No. 3, 1893, after summarising the results obtained by others, gives us his own experience of this remedy. He has employed it in a considerable number of cases of insanity. He does not believe duboisin to be a hypnotic like chloral, morphin, or sulphonal, because he finds it powerless to induce sleep in healthy persons, though followed by muscular weakness. Neither had it any soporific effect in many cases of melancholia and paranoia in which he tried it. On the other hand, he finds it of great value in motor unrest not occasioned by delusions and hallucinations. He thinks it has a sedative effect on the muscles, and considers that the giddiness and reeling which have followed the administration of large doses of the drug are not signs of sleepiness, but of affection of the muscular apparatus. In one case a dose of one milligramme caused great dilatation of the pupils, weak and rapid pulse, and difficulty of breathing, with a feeling of suffocation. Mendel does not recommend a higher dose than one milligramme by subcutaneous injection. In general he uses only from 0·0005 to 0·0008 of a gramme. He thinks that in some cases of insanity duboisin is to be preferred to all other remedies. In one especially mentioned, characterised by hallucinatory delirium, accompanied by great motor restlessness both by day and night, chloral, morphin, and other narcotics were tried one after the other without any effect, till it was found that duboisin brought rest and sleep for several hours. Its use was continued for months. Mendel also tried duboisin in twelve cases of paralysis agitans. He found it of great benefit in causing the tremblings to cease, so that after the injection of duboisin the patients could execute movements which they could not do before. The doses used were from two to three milligrammes two or three times a day. After the injection of duboisin in the evening they fell into a refreshing sleep. Thus, though he did not find duboisin to be a curative remedy, he found it to be of great use in treating the distressing symptoms of paralysis agitans.

Rabow, of Lausanne, has also employed the drug in the treatment of mental and nervous disturbances, and his conclusions as to its efficacy are quite in accord with those of previous observers.—(*Journ. Ment. Science.*)

There can be no doubt that, like hyoscin, duboisin is a powerful sedative, its physiological action is rapid and well marked. I have seen its instillation into the eye followed quickly by faintness, giddiness, nausea, intense dryness of the tongue and fauces, with inability to swallow, and a tendency to general muscular paresis.

GROWTH AFTER REMOVAL OF ADENOID TUMOURS.

MM. **Castex** and **Malherbe** publish, in *La Presse Médicale*, the result of their investigations of the effect upon general growth of removal of enlarged tonsils or of naso-pharyngeal adenoid tumours in children. They find that, in the few months following operation, the rate of growth, estimated by weight, height, and chest measurement, is almost tripled. They observed 143 cases, but were able to utilise only 35, owing to the difficulty of obtaining accurate or trustworthy information of patients after operation. Their method was to compare the rate of growth, ascertained by careful measurements, in these 35 cases, with the normal rate, as stated by Quételet and Pagliani. The whole paper (which appeared on the 31st of March, 1894) is worthy of attention.

RECTO-CYSTOTOMY.

At the late International Medical Congress, Dr. L. Bauer read a paper advocating lithotomy by a vertical incision through the rectum; to be subsequently closed, like an ordinary vesico-vaginal fistula, with a silver suture. Many years ago, Dr. Emmet, of New York, expressed the opinion that the invention of Sims' (or Bozeman's) speculum made this the method of the future for the extraction of vesical calculus. Dr. Bauer remarks that in the case of the adult white there is no danger of wounding the peritoneum; but in children and negroes it is apt to descend deeply into the true pelvis sometimes as far as the prostate. In them, therefore, the operation is contra-indicated. The wound heals in six or seven days.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

The Medical History of Christopher Columbus, and the part taken by the Medical Profession in the Discovery of America.[a] Read by the Author before the Section on General Medicine of the First Pan-American Medical Congress, Washington, D. C., September 7, 1893. [Published simultaneously in the Spanish language.] By A. M. FERNANDEZ DE YBARRA, M.D., New York; Corresponding Member of the Spanish Medico-Chirurgical Academy of Madrid, Spain; the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba; Official Delegate of the Medico-Legal Society of New York to the First Medical Congress of the Island of Cuba; Executive Assistant Secretary-General of the First Pan-American Medical Congress.

> "*Amicus Plato, sed magis amica veritas.*"—ARISTOTLE.

ONE of the most important events in the history of humanity, and perhaps second only to the birth of Christ in beneficial results, is, without any doubt, the discovery of America by the Spaniards, under the leadership of Christopher Columbus. A number of times willing and unwilling visitors certainly did come before that event from the Old World to the New. In the fifth century of the Christian era a few Buddhist missionary priests came, either directly from China to a country which they called Fusang, and known to us now as Mexico, or they first, and most probably, settled in Japan and afterwards crossed from there to the Pacific coast of America; the voyages of the Northmen in the tenth and eleventh centuries, the traditional narratives of which tell us of the deeds of the daring sailor, Eric the Red, and the discovery of Helluland, Markland, and Vinland by his famous son, Leif Ericsson; the story of the Venetian brothers, Nicolo and Antonio Zeno, the first wrecked in 1390 upon one of the Faroe Islands, his subsequent visit to Greenland and return, and the second embarking on an unsuccessful voyage of discovery in the Atlantic Ocean, about the year 1400, to verify some fishermen's reports of the existence of land a thousand miles or more to the west from the Faroe Islands; the old and often-repeated rumours concerning the fancied Island of St. Brandan, which several Portuguese and Spanish captains imagined they had beheld beyond Madeira; the seemingly truthful statement in regard to the Spanish pilot, Alonzo Sanchez de Huelva, who, sailing in 1484 (which should be 1474), "one year more or less," from the Canaries to Madeira, had been tempest-tossed by violent easterly winds upon an unknown island (the Island of Hispaniola or San Domingo), where he landed, took an altitude, and wrote an account of all he saw, and all that had occurred in the voyage. He succeeded in returning, arrived at Terceira (one of the Azores) sick and worn out, and soon after died, leaving Columbus, who had hospitably received him in his house and nursed him, heir to his papers.

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[a] Reprinted, at the Author's request, from "The Journal of the American Medical Association."

All these, and more, pre-Columbian voyages, legendary reports and fanciful descriptions of America, are completely divested of true historical importance, and did not contribute a mite to our geographical knowledge or to the betterment of mankind. To speak of them as to implicate, in any sense whatsoever, that they constitute a *discovery* of America is perfectly absurd. To expatiate about them with the mental reservation of robbing Columbus of his well-earned title of discoverer of the New World is the height of folly. In 1492 the American continent was to a certain degree as unknown to the rest of the world as the nebulous inhabitants of the planet Mars are to us to-day.

On the present four hundredth anniversary of that paramount event in history, almost all classes and conditions of men have endeavoured to bring forth their representatives who, in some way or another, had anything to do with it. Mariners are still singing the wonderful skill and intrepidity of their seafaring companions of the fifteenth and sixteenth centuries. The military have spoken of their famous captains, and with minute details referred to their heroic feats and glorious conquests, not always wise or even right. The clergy have told us of the first American bishops, large numbers of pious and lion-hearted missionaries, and the numberless martyrs sacrificed in our luxuriant forests. Politicians have pointed out the many examples of good, indifferent, bad, and very bad rulers, together with chieftains and leaders totally destitute of diplomatic tact. Lawyers have shown who were at that time eminent legislators, and put on record the notable judicial contests arising in consequence of the discovery of America. Physicians only have remained silent in this universal revival, when we, as a class, contributed very largely to the realisation of the constant dream of a great genius, thought then by almost every one but a distinguished Italian physician and a modest Spanish village doctor to be merely a madman.

If modern anthropological science can justly boast of having made clear the intimate relations existing between the shape, volume, and minute structure of the internal organs of man and his outward manifestations, both physical and psychical, it is evident that in speaking of such a profoundly important historical figure as Christopher Columbus, an humble attempt to examine his personal appearance, temperament, physical ailments, and the cause of his untimely death may greatly help a more accurate appreciation of his mental characteristics and moral nature.

First, as to the date of his birth. This is a *vexata quæstio* which it would be out of my power in the limits of this short paper to discuss. Washington Irving, relying upon the evidence of Andrés Bernaldez, an historiographer and intimate friend of Columbus, states it to be about 1435 or 1436. Don Fernando, the Admiral's second son and his most faithful biographer, relates that in a letter written by his father to the King and Queen of Spain, dated 1501, he declares that he had then been forty years at sea, and in another letter that he was fourteen years old when he first went to sea; so that allowing a year either way for probable inattention to circumstantial details, we get the date of his birth, fixed by his own hand, at about 1447. If we take into consideration that he did not go to sea during his seven years of patient waiting in Spain—from 1485, when for the second time he entered that country from Portugal, to 1492, when he set sail westward on the Sea of Darkness—we must then acknowledge that in referring in 1501 to his being forty years at sea, he did not probably reckon the time spent in surmounting the difficulties encountered at the court of Ferdinand and Isabella. This would bring us to 1440 as the date of his birth; but if we make a calm and philosophical analysis of the expression, "being forty years at sea," from a sailor who had the year before arrived, a prisoner in fetters, poor, sickly, and dejected, from his third voyage across an unknown ocean, and bearing in mind his former unequivocal statement that he had "followed the sea for twenty-three years without being on shore any space of time worth accounting," in which period he had been to and fro upon the Mediterranean, the Grecian Archipelago, France, Flanders, the coast of Guinea, the Canary Islands, Madeira, Porto Santo, the Azores, Cape Verde Islands, England, Ireland, Iceland, and sailed a hundred leagues beyond this "Ultima Thule" of Ptolemy, we will be forced to admit that that phrase only means *a sailor of forty years' experience*, the same as any old professor, architect, lawyer, or physician might express himself in like circumstances regardless of the few years spent in travelling, sickness, or some temporary occupation.

The place of his birth was the city of Genoa.

From the accounts of his personal appearance given by his son Fernando, Las Casas, Andrés Bernaldez, Pietro Martire d'Anghiera, the

Portuguese historian João de Barros, Agostino Giustiniani, Antonio Gallo, and others who knew him well, I gather that Columbus was a man of commanding presence—tall and well-built, with fair ruddy complexion somewhat freckled, oval face with rather prominent cheek bones, broad and high forehead, medium-size mouth, aquiline nose, grayish-blue eyes, very light reddish hair, and beard prematurely turned gray. He was of a genial disposition, courteous and graceful, his conversation agreeable and interesting to such a point that strangers were quickly attracted and felt at ease. An undefinable air of dignified command surrounded him, and the magnetism of his noble soul was perceptible in the tender glance of his glowing eyes, when his religious enthusiasm was kindled by the divine spark of genius that abided in him. Of a great nervous susceptibility, his mind was highly imaginative and poetical. Naturally religious, he was temperate in eating and drinking, and puritanical in his habits.

My search for particulars regarding the life of Columbus prior to his arrival in Portugal is far from satisfactory. From the period of his first going to sea, which was about 1460, until the year some biographers say his vessel was burned near the Portuguese coast, not far from the city of Lisbon, nowhere in history have I met with a distinct mention of his name. We have positive evidence, however, that in 1472 he was in the city of Savona, Italy, from the fact of his signature being appended as witness to the will of one Nicolo Monleone, under date of March 20 of that year. It appears very probable that in 1469 he took part, under the command of a French vice-admiral of the name of Caseneuve, in a successful sea fight to capture several Dutch ships returning from the herring fishery in the Baltic. We find him afterwards in a terrible naval engagement between Lisbon and Cape St. Vincent, trying to take possession of four richly laden Venetian galleys on their return from Flanders, the desperate struggle lasting from morning till evening; the hand grenades and other burning missiles used in the battle caused at last a general conflagration among the vessels, which, having been lashed together with iron grapplings, could not be separated, and the crews were compelled to leap into the water to escape the fire. Columbus' son, Fernando, goes on to say that "his father, who was a good swimmer, finding himself at the distance of two leagues from land, seized an oar, and by its aid succeeded in reaching the shore." It was close at hand to Lisbon, where he went and there made his abode. This happened in the year 1470 or early in 1471, and in 1473 he married the Portuguese lady, Philippa Moniz de Perestrelo, and went to live with her at Porto Santo, a small island on the Atlantic Ocean, twenty-five miles northeast of Madeira. There his son Diego was born in 1474.

The subject of the medical history of Columbus is a barren one, so barren indeed that it has never before been touched upon. I asked the present Duke of Veragua, and such living sterling biographers of the illustrious

Genoese navigator as Mr. Henry Harrisse, Mr. José M. Asensio y Toledo, Professors John Fiske and C. K. Adams, Mr. Justin Winsor and Mr. Cesareo Fernandez Duro, and they all answered me that they did not know of anybody who had investigated the medical aspect of the life of Columbus. I consulted the librarians of the Smithsonian Institution at Washington, Lenox and Astor Libraries of New York, and the Public Library of the City of Boston; I searched carefully all the old standard historical authorities, but very little did I find, and here it is embodied. I must, however, acknowledge my indebtedness to a recent monograph of Dr. Calatraveno, of Madrid, Spain, for many things I say in this paper about the part taken by the medical profession in the discovery of America. Nearly a year of constant inquiry and exploration in this unproductive field has resulted in what I venture to call my contribution to this first Columbian Pan-American assemblage of scientific men.

The piratical character of the seafaring life of Columbus' time, and the peculiar construction of the vessels, necessarily exposed its followers to unceasing hardships, privation, and many unavoidable dangers to health. The severity of this early manner of living in a man of such a well-marked sanguine temperament as that of the immortal sailor must have very insidiously tended to undermine his naturally strong constitution, after "being at sea twenty-three years without remaining on shore any space of time worth accounting," and render him liable, at the age of 46 years, to the ailments and sicknesses he subsequently suffered during his four voyages of discovery to America; to which must be added the grief, disappointment, mental anxiety and moral depression he endured, altogether combining in the production of the chronic disease that put an end to his imperishable career at a comparatively premature period of life.

Regarding hereditary predisposition to disease, I may safely say he had none. His father died at an extreme old age (in 1496 or 1498) and his mother a few years before. He was the eldest of five children, four boys and a girl, and not one of the others showed hereditary taint. His parents belonged to the healthy, sound, hearty and frugal types of the Ligurian peasantry.

On Friday, August 3, 1492, Columbus sailed westward from the little seaport of Palos de Moguer, Spain, to plough the Sea of Darkness in quest of a New World. On Friday, October 12, of the same year, he discovered America, and also on Friday, March 15, 1493, he dropped anchor, back from his mission, at the same little harbour of Palos. He spent 225 days in this first round trip to the Western hemisphere, in which time I have found no record whatever of his having suffered any sickness, except casual references to "sore eyes." This slight and transitory ocular affection which he often experienced afterwards, I consider to have been probably due to blepharitis, or styes, or to granular ophthalmia, brought on by straining the eyes in search of land in a diaphanous atmosphere where the sun's rays of light are most intense. Perhaps the Admiral's leaning towards albinoism also contributed to it. His excellent eyesight at night seems to lend weight to this opinion of mine.

He undoubtedly suffered great anxiety, tribulation, and mental anguish when the crews began to murmur, and finally became openly impatient and mutinous at not finding land; but this prejudicial moral effect on his health must have been entirely extinguished by the joy, satisfaction, and pride of having succeeded in his stupendous enterprise. The two shabby tricks of Martin Alonzo Pinzon, captain of the caravel *Pinta*—by far the best sailor of the three—when on the 20th of November, sailing along the coast of beautiful Cuba, he treacherously deserted his chief, and on the 12th of February he surreptitiously abandoned him again to bring the news of the discovery home first, must have also caused Columbus no little pain and dejection.

He put to sea again, on his second voyage of discovery, from Cadiz, September 25, 1493; this time with a fleet of three galleons or carracks and fourteen caravels, carrying 1,500 people on board, instead of the 120 who accompanied him in his former unparalleled hazardous cruise.

This large number of men—among whom were many aristocratic young fellows, daring, supercilious, irascible and obstinate hidalgos, left without occupation at the end of the war with the Moors—were placed under the medical care of Dr. Diego Alvarez Chanca, a distinguished practitioner of great reputation in the city of Seville, who was also Physician-in-Ordinary to the King and Queen of Spain, and had attended their first-born, Princess Isabella (who afterwards became Queen of Portugal), during her serious illness the year before. Speaking of him in a memorial addressed to Ferdinand and Isabella, dated January 30, 1494, Columbus wrote: "You will inform their Highnesses of the continual labour that Dr. Chanca has undergone, from the prodigious number of sick and the scarcity of provisions; and that, in spite of all this, he exhibits the greatest zeal and benevolence in everything that relates to his profession. As their Highnesses have intrusted me with the charge of fixing the salary that is to be paid to him while out here (although it is certain that he neither receives, nor can receive anything from any one, and does not receive anything from his position equal to what he did receive and could still get if he were in Spain, where he lived peaceably and at ease, in a very different style from what he does here), I have, nevertheless, not ventured to place to the credit of his account more than fifty-thousand maravedis (about $725) per annum, as the sum which he is to receive for yearly labour during the time of his stay in this country."

The letter or report of this learned and magnanimous man to the Chapter of Seville, from which I quote two passages further on, is the first scientific monograph written about America, and worthy of careful perusal.

On the 27th of November the fleet arrived in the harbour of La Navidad, in the Island of San Domingo, and found the little fortress completely destroyed, while each and every one of the thirty-eight men left there on the first voyage had been massacred by the native Indians. Columbus caused to be built a neat little town, to which the name of Isabella was given, and he remained in this island until April 24, 1494, when he put to sea again and discovered Jamaica (May 3), and visited Cuba for the third time; returning from there he passed by all the southern coast of Jamaica and Hispaniola, and discovered the little islands of Beata, Saona, and Mona.

The day after leaving this last island, in the passage between San Domingo and Porto Rico (September 25, 1494), worn out with the toil and hardships of a five months' cruise among people who, though very kind and generous, could not afford him the relief and comfort he so much needed, and in which time his incessant watching, nervous excitement, and high hopes of finding large quantities of gold and spices had sustained him wonderfully, the inevitable reaction at last overtook him, and his whole system suddenly collapsed. "He lay in a stupor, knowing little, remembering nothing, his eyes dim and vitality oozing, until the little fleet sorrowfully, but gladly entered the harbour of Isabella." Columbus himself acknowledges that for thirty-three days he had slept next to nothing, when he began to feel very tired and fell into a lethargical state which almost deprived him of his life. He remained sick very nearly five months, under the care of Dr. Chanca.

(To be concluded.)

MATHEW'S MEDICAL QUARTERLY.

THE second number of this periodical (published at Louisville, Kentucky) contains a well-executed portrait of our *confrère*, Dr. Charles B. Ball, and an appreciative notice of himself and his work. Our readers may be reminded that this quarterly is devoted to "Diseases of the Rectum, Gastro-intestinal Disease and Rectal and Gastro-intestinal Surgery." Specialists in these branches of medicine will find much to interest and instruct in the 123 pages of original matter which this number offers.

PASSAGE OF THE OVUM FROM OVARY TO TUBE.

THE *American Journal of Obstetrics* summarises from the *Archiv für Gynäkologie* some experiments of Lode's appearing to show that "the ciliary currents can propel the ova, not only from the ovary to the tube, but also from the abdominal cavity. They show that the fimbriated extremity of the tube need not be in contact with the ovary during the expulsion of the ovum." Having injected into the abdominal cavity of rabbits an emulsion of charcoal, he found charcoal in the tubes after a few hours. He made a similar experiment with similar result, injecting the ova of the ascaris of swine.

SANITARY AND METEOROLOGICAL NOTES.

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Vital Statistics

For four Weeks ending Saturday, July 14, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	June 23.	June 30.	July 7.	July 14.		June 23.	June 30.	July 7.	July 14.
Armagh -	7·0	21·0	0·0	14·0	Limerick -	23·9	26·7	9·8	18·2
Belfast -	22·9	22·5	21·1	17·4	Lisburn -	4·3	25·7	17·0	17·0
Cork -	21·5	15·9	16·6	22·1	Londonderry	11·0	18·8	12·6	23·6
Drogheda	22·0	13·2	13·2	22·0	Lurgan -	9·1	4·6	9·1	18·2
Dublin -	22·7	19·7	17·3	17·5	Newry -	4·0	12·1	8·1	12·1
Dundalk -	20·9	16·8	4·2	8·4	Sligo -	10·2	35·5	10·2	0·0
Galway -	26·4	49·1	18·9	49·1	Waterford -	17·5	15·0	25·0	15·0
Kilkenny	23·6	23·6	23·6	9·4	Wexford -	22·6	9·0	22·6	18·1

In the week ending Saturday, June 23, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 16·0), was equal to an average annual death-rate of 15·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 16·6 per 1,000. In Glasgow and also in Edinburgh the rate was 17·1.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 21·2 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in ten of the districts to 5·2 in Belfast—the 118 deaths from all causes registered in that district comprising 9 from measles (a decrease of 5 as compared with the number for the preceding week), 2 from scarlatina, 1 from typhus, 3 from whooping-cough, 3 from diphtheria, 2 from simple continued fever, 6 from enteric fever, and 1 from diarrhœa. Among the 31 deaths from all causes registered in Cork are 3 from measles and 1 from diarrhœa.

In the Dublin Registration District the registered births amounted to 202—114 boys and 88 girls; and the registered deaths to 155—89 males and 66 females.

The deaths, which are 5 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·1 in every 1,000 of the population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 22·7 per 1,000. During the first twenty-five weeks of the current year the death-rate averaged 27·7, and was 1·9 under the mean rate in the corresponding period of the ten years 1884–1893.

Only 13 deaths from zymotic diseases were registered, being 8 below the average for the corresponding week of the last ten years, and 5 under the number for the week ended June 16. They comprise 1 from scarlet fever (scarlatina), 2 from influenza and its complications, 3 from whooping-cough, 4 from enteric fever, and 1 from diarrhœa.

Five cases of small-pox were admitted to hospital against 1 admission in the preceding week: 2 small-pox patients were discharged and 11 remained under treatment on Saturday, being 3 over the number in hospital on Saturday, June 16.

The number of cases of enteric fever admitted to hospital was 12, being 1 in excess of the admissions for the preceding week: 5 patients were discharged, 4 died, and 55 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 5 cases of scarlatina: 44 cases of that disease remained under treatment on Saturday. being 10 under the number in hospital on the previous Saturday.

Diseases of the respiratory system caused 21 deaths, being 2 in excess of the number for the preceding week, but 5 under the average for the 25th week of the last ten years. The 21 deaths comprise 13 from bronchitis and 6 from pneumonia or inflammation of the lungs.

In the week ending Saturday, June 30, the mortality in thirty-three large English towns, including London (in which the rate was 15·4), was equal to an average annual death-rate of 15·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 16·9 per 1,000. In Glasgow the rate was 16·8, and in Edinburgh it was 13·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 20·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in eleven of the districts to 4·3 in Lisburn—the 6 deaths from all causes registered in that district comprising 1 from scarlatina. Among the 116 deaths from all causes registered in Belfast are 16 from measles (an increase of 7 as compared with the number for the preceding week), 2 from whooping-cough, and 2 from diarrhœa. The 19 deaths in Limerick comprise 2 from scarlatina.

In the Dublin Registration District the registered births amounted to 215—120 boys and 95 girls; and the registered deaths to 136—75 males and 61 females.

The deaths, which are 37 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·3 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 19·7 per 1,000. During the first twenty-six weeks of the current year the death-rate averaged 27·5, and was 1·9 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 15, being 2 in excess of the low number for the preceding week, but 10 under the average for the 26th week of the last ten years. The 15 deaths comprise 1 from measles, 2 from scarlet fever (scarlatina), 3 from influenza and its complications, 2 from whooping-cough, 4 from enteric fever, and 1 from diarrhœa.

During the week 4 cases of small-pox were admitted to hospital, being 1 under the number of admissions for the preceding week: 15 cases of the disease remained under treatment in hospital on Saturday.

Twelve cases of enteric fever were admitted to hospital, being equal to the admissions for the preceding week: 9 patients were discharged, 1 died, and 57 remained under treatment on Saturday, being 2 over the number in hospital on Saturday, June 23.

The hospital admissions for the week included, also, 10 cases of scarlatina against 5 cases of that disease admitted during the preceding week: 7 scarlatina patients were discharged and 47 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

Twenty-three deaths from diseases of the respiratory system were registered, being 2 over the number for the preceding week, but 1 under the average for the 26th week of the last ten years. They consist of 13 from bronchitis and 10 from pneumonia or inflammation of the lungs.

In the week ending Saturday, July 7, the mortality in thirty-three large English towns, including London (in which the rate was 15·8), was equal to an average annual death-rate of 16·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·9 per 1,000. In Glasgow the rate was 16·5, and in Edinburgh it was 15·6.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 17·5 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·9 per 1,000, the rates varying from 0·0 in nine of the districts to 5·0 in Waterford—the 10 deaths from all causes registered in that district comprising 2 from enteric fever. Among the 109 deaths from all causes registered in Belfast are 11 from measles (a decrease of 5 as compared with the number for the preceding week), 1 from scarlatina, 2 from whooping-cough, 3 from diphtheria, 1 from simple continued fever, and 3 from diarrhœa. The 24 deaths in Cork comprise 1 death from each of the following diseases—viz., measles, whooping-cough, and diarrhœa.

In the Dublin Registration District the registered births amounted to 175—92 boys and 83 girls; and the registered deaths to 118—53 males and 65 females.

The deaths, which are 33 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 17·6 in every 1,000 of the population. Omitting the deaths (numbering 2) of persons admitted into public institutions from localities outside the district, the rate was 17·3 per 1,000. During the first twenty-seven weeks of the current year the death-rate averaged 27·1, and was 2·1 under the mean rate in the corresponding period of the ten years 1884–1893.

Only 11 deaths from zymotic diseases were registered, being 13 below the average for the corresponding week of the last ten years and 4 under the number for the week ended June 30. They comprise 3 from influenza and its complications, 1 from whooping-cough, 3 from diarrhœa, 1 from dysentery, and 1 from erysipelas.

No cases of small-pox were admitted to hospital during the week: one small-pox patient was discharged, leaving 14 as the number of cases of this disease in hospital on Saturday.

The number of cases of enteric fever admitted to hospital was 9, being a decline of 3 as compared with the admissions for each of the two weeks preceding: 12 patients were discharged and 54 remained under treatment on Saturday, being 3 under the number in hospital on Saturday, June 30.

The hospital admissions for the week included, also, 6 cases of scarlatina and 2 cases of typhus: 15 scarlatina patients were discharged and 38 remained under treatment in hospital on Saturday. The 2 cases of typhus admitted in the course of the week were the only cases of that disease in hospital on Saturday.

There were but 14 deaths from diseases of the respiratory system registered, being 9 under the number for the preceding week and 7 under the average for the 27th week of the last ten years. They consisted of 7 from bronchitis and 7 from pneumonia or inflammation of the lungs.

In the week ending Saturday, July 14, the mortality in thirty-three large English towns, including London (in which the rate was 16·2), was equal to an average annual death-rate of 15·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·4 per 1,000. In Glasgow the rate was 15·5, and in Edinburgh it was 14·6.

The average annual death-rate in the sixteen principal town districts of Ireland was 18·1 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 1·7 per 1,000, the rates varying from 0·0 in ten of the districts to 3·1 in Belfast—the 90 deaths from all causes registered in that district comprising 10 from measles (a decrease of 1 as compared with the number for the preceding week), 2 from whooping-cough, 1 from diphtheria, 1 from enteric fever, and 2 from diarrhœa. Among the 32 deaths from all causes registered in Cork are 3 from measles and one from whooping-cough. The 13 deaths in Limerick comprise 2 from scarlatina.

In the Dublin Registration District the registered births amounted to 167—95 boys and 72 girls; and the registered deaths to 121—58 males and 63 females.

The deaths, which are 31 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 18·0 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 17·5 per 1,000. During the first twenty-eight weeks of the current year the death-rate averaged 26·8, and was 2·1 under the mean rate for the corresponding period of the ten years 1884–1893.

Only 9 deaths from zymotic diseases were registered, being 2 under the low number for the preceding week and 14 below the average for the 28th week of the last ten years. They comprise 3 from whooping-cough, 2 from enteric fever, 1 from diarrhœa, and 1 from erysipelas.

Four cases of small-pox were admitted to hospital: in the preceding week no cases of the disease had been received. Eighteen small-pox patients remained under treatment in hospital on Saturday.

The number of cases of enteric fever admitted to hospital was 8, being 1 under the admissions for the preceding week, and 4 under the number for the week ended June 30. Eleven enteric fever patients were discharged, 1 patient died, and 50 remained under treatment on Saturday, being 4 under the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 6 cases of scarlatina and 1 case of typhus: 38 cases of the former and 3 of the latter disease remained under treatment in hospital on Saturday.

Twenty deaths from diseases of the respiratory system were registered, being 6 over the low number for the preceding week, but 3 under the average for the 28th week of the last ten years. They comprise 12 from bronchitis and 4 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20 *N. Long.* 6° 15′ *W., for the Month of June,* 1894.

Mean Height of Barometer,	29·992 inches.
Maximal Height of Barometer (on 29th, at 9 a.m.),	30·368 „
Minimal Height of Barometer (on 2nd, at 9 a.m.),	29·493 „
Mean Dry-bulb Temperature,	56·4°.
Mean Wet-bulb Temperature,	53·4°.
Mean Dew-point Temperature,	50·5°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·369 inch.
Mean Humidity,	81·4 per cent.
Highest Temperature in Shade (on 30th),	72·8°.
Lowest Temperature in Shade (on 6th),	43·1°.
Lowest Temperature on Grass (Radiation) (on 6th)	36·0°.
Mean Amount of Cloud,	61·9 per cent.
Rainfall (on 19 days),	1·652 inches.
Greatest Daily Rainfall (on 17th),	·408 inch.
General Directions of Wind,	W., E.

Remarks.

Although somewhat cloudy and rather cool, this proved a favourable month, and its closing days were exceptionally warm and brilliant. The rainfall was frequent but not heavy, and a decided advance in the night-temperature was perceptible as compared with the frosty May of 1894. No electrical disturbances took place near Dublin. Thunder was heard at Malin Head on the 21st, and lightning was seen at Valentia Island on the 3rd.

In Dublin the arithmetical mean temperature (57·0°) was below the average (57·8°) by 0·8°; the mean dry bulb readings at 9 a.m. and 9 p.m. were 56·4°. In the twenty-nine years ending with 1893, June was coldest in 1882 (M. T. = 55·8°); and in 1879 ("the cold year") M. T. = 55·9°). It was warmest in 1887 (M. T. = 62·3°), in 1865 (M.T. = 61·0°), and in 1868 (the "warm year") M. T. = 60·5°). In 1866 the M. T. was 57·5°; in 1888, 56·2°; in 1889, 59·5; in 1890 58·1°; in 1891, 59·0°; in 1892, 56·7°, and in 1893, 59·9°.

The mean height of the barometer was 29·992 inches, or 0·075 inch above the corrected average value for June—namely, 29·917 inches. The mercury rose to 30·368 inches at 9 a.m. of the 29th, and fell to 29·493 inches at 9 a.m. of the 2nd. The observed range of atmospherical pressure was, therefore, 0·875 inch—that is, less than nine-tenths of an inch.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 56·4°, or 7·2° above the value for May 1894. Using the formula, *Mean Temp.* = *Min.* + (*max.* — *min.* × ·465), the value was 56·5°, or 0·7° below the average mean temperature for June, calculated in the same way, in the twenty-five years 1865–89, inclusive (57·2°). The arithmetical mean of the maximal and minimal readings was 57·0°, compared with a twenty-five years' average of 57·8°. On the 30th the thermometer in the screen rose to 72·8°—wind, E.N.E.; on the 6th the temperature fell to 43·1°—wind, N.E. The minimum on the grass was 36·0°, also on the 6th.

The rainfall amounted to 1·652 inches, distributed over 19 days. The average rainfall for June in the twenty-five years, 1865–89, inclusive, was 1·817 inches, and the average number of rainy days was 13·8. The rainfall was, therefore, slightly below, while the rainy days were considerably above the average. In 1878 the rainfall in June was very large—5·058 inches on 19 days; in 1879 also 4·046 inches fell on 24 days. On the other hand, in 1889, only ·100 inch was measured on 6 days; in 1887 the rainfall was only ·252 inch, distributed over only 5 days; in 1874 only ·405 inch was measured on 9 days; and in 1868 only ·677 inch fell on but 6 days. In 1888 the rainfall was as much as 3·045 inches, distributed over as many as 18 days. In 1890 it was 1·930 inches on 18 days, in 1891 2·753 inches on 14 days, in 1892 1·671 inches on 17 days, and in 1893 1·716 inches on 12 days.

High winds were noted on 8 days, but the force of a gale was attained on only one occasion—the 23rd. Temperature reached or exceeded 70° in the screen on only 2 days; compared with 17 days in 1887, only 1 day in 1888, 10 days in 1889, only 2 days in 1890, 6 days in 1891, 4 days in 1892, and 5 days in 1893. Hail fell on the 10th and 18th. Fog was observed on the 3rd, 4th, and 9th.

The first two days were changeable. Friday, the 1st, opened with a very low temperature, and was then fair to cloudy and again fair. On the morning of Saturday, the 2nd, the barometer was below 29·5 inches in a depression lying over the south of Ireland, and the weather was dull and rainy though afterwards fair.

Although the weather remained unsettled, cloudy, and showery or rainy, the week ended Saturday, the 9th, witnessed a decided advance in temperature. No high day maxima indeed were recorded, but the nights were much less cold, and there was a pleasant softness in the air. Very heavy rains were experienced at one time or another in most parts of the British Islands. On Sunday much sea fog was prevalent round our coasts, and great heat was felt in France, the thermometer rising to 97° at Biarritz, 88° at Rochefort, 82° at Lyons, and 76° in Paris. At night thunderstorms and heavy rain prevailed in the S. and S.W. of England and S. Wales. The rainfall at Roche's Point, Co. Cork, was 1·10 inches; at Pembroke it was 1·09 inches. On Monday 2·26 inches fell at Donaghadee, and ·99 inch at both York and Oxford. On Wednesday a depression travelled in a curve from the Bay of Biscay up the English Channel, reaching North Germany by Thursday morning when a violent thunder and hail storm swept across Austria. This system again caused heavy rains, ·85 inch being registered at Prawle Point, Devon, ·83 inch at Dungeness, ·80 inch at the North Foreland, and 1·00 inch at Sittingbourne, in Kent. Showery conditions held to the end of the week. In Dublin the mean height of the barometer was 29·856 inches, pressure ranging from 29·663 inches at 9 p.m. of Monday (wind, N.N.W.) to 29·969 inches at 9 p.m. of Thursday (wind, W. by N.). The corrected mean temperature was 53·8°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 53·3°. On Wednesday the screened thermometers sank to 43·1°, on Thursday they rose to 63·0°. The rainfall was ·570 inch on six days, ·384 inch being measured on Monday. The wind was variable in direction, E.N.E. being the most prevalent point.

As regards the week ended Saturday, the 16th, it is to be noted that although at first cold, changeable, and showery as in past weeks, the weather became much warmer and finer on Wednesday, and Saturday proved a perfect summer's day. A very striking feature of the period was the prevalence of great heat in the extreme North of Europe until after Wednesday—at Haparanda, on the Gulf of Bothnia, the daily maxima were—Sunday, 73°; Monday, 75°; Tuesday, 77°; and Wednesday, 75°. The corresponding figures at Munich, 15° further south, were—66°, 61°, 55°, and 57°. This anomalous distribution of temperature was brought about by a tendency to the formation of areas of high atmospheric pressure (anticyclones) both in the far North of Europe and over the Bay of Biscay and the Peninsula. Between these high pressure systems numerous areas of low pressure moved slowly eastwards across Scotland, the North Sea, and the southern portion of the Baltic, causing clouds, variable winds, and frequent showers within the limits of their influence. In Dublin heavy local showers fell on the first three days, and hail was observed shortly after noon on Sunday. On Wednesday a brisk rise of temperature took place, continuing to the close of the week, with the exception of a few hours on Friday night, when a short cold spell occurred under a clear sky and with a calm atmosphere. The mean height of the barometer was 30·009 inches, pressure ranging between 29·749 inches at 8 p.m. of Monday (wind, N.W.) and 30·177 inches at 9 a.m. of Thursday (wind, W.). The corrected mean temperature was 55·5°. The mean dry bulb temperature at 9 a.m. and 9 p.m.

was 55·7°. On Saturday the shade thermometers rose to 69·2°. On Wednesday they fell to 44·2°. The rainfall was ·242 inch on five days, ·111 inch being measured on Sunday. The prevailing wind was N.W. Rain fell heavily in the S.E. of England on Friday evening.

Although changeable and far from settled, the weather of the week ended Saturday, the 23rd, was favourable to both health and vegetation. There was again a distinct advance in temperature, but no excessive summer heat was felt—at least in the British Islands. The sky was often clouded, and rain fell at times—copiously in Ireland on Monday, in Scotland on Tuesday, and in many parts of England on Wednesday. A fine, warm spell followed, so that on Friday the shade temperature reached 71° in Dublin, 72° in London and at York and Loughborough, and 74° at Cambridge. Saturday was not so fine, owing to the advance of an atmospheric depression over Ireland from S.W. In the evening a moderate westerly gale prevailed for a short time. The prevalence of remarkable heat in the extreme north of Europe has once more to be chronicled—the maxima at Haparanda (Lat. 65° 50′ N.) were—73°, 73°, 82°, 77°, 75°, 79°, and 75°. The general arrangement of atmospheric pressure was anticyclonic over the Peninsula, France, and—at times—Germany; cyclonic over the British Isles and Scandinavia. On Monday morning a large secondary depression was found over Leinster, the Irish Sea, and St. George's Channel. Its presence was accompanied by low temperatures and a heavy rainfall. On Wednesday a series of V-shaped depressions passed across Great Britain, causing a good deal of rain in many parts of that island. Summer heat was enjoyed on Friday and Saturday. In Dublin the mean height of the barometer was 29·934 inches, pressure varying between 30·127 inches at 9 a.m. of Thursday wind, S.S.W.) and 29·690 inches at 9 a.m. of Monday (wind, S.S.E.). The corrected mean temperature was 57·1°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 56·5°. On Friday the thermometer rose to 70·7°, and on Tuesday it fell to 44·9° in the screen. The rainfall was ·593 inch on four days, ·408 inch being measured on Sunday. The prevailing wind was W.S.W.

During the week ended Saturday, the 30th, the weather, while cloudy and dull, with fresh westerly winds, at first, improved daily, and after Wednesday cloudless skies, moderate and cool easterly breezes and brilliant sunshine were enjoyed. At the beginning of the week a depression of some importance—its minimal pressure being at first below 29·40 inches—was crossing Scandinavia in a south-easterly direction. Some secondary areas of low pressure at the same time passed over the British Isles from west to east, with the result that the wind was strong and gusty from westerly points, the sky was densely clouded, and showers fell more or less heavily at many stations in Ireland, Scotland, and the northern half of England. By Tuesday morning an anticyclone had formed over Ireland and England in the rear of the disturbances. This system developed and spread northwards over Scotland and the Norwegian Sea, so that light to moderate easterly winds became general, while the sky cleared, although the atmosphere remained hazy until Saturday. On this day the fine weather culminated in brilliant sunshine and great heat. In London the shade temperature touched 80° on Thursday and also on Friday, and reached 82° on Saturday. In Dublin a refreshing sea-breeze subdued the sun's heat, but nevertheless the maximum on Saturday was 72·8°. The mean height of the barometer was 30·253 inches, pressure ranging from 29·967 inches at 9 a.m. of Sunday (wind, W.) to 30·368 inches at 9 a.m. of Friday (wind, E.) The corrected mean temperature was 60·4.° The mean dry bulb readings at 9 a.m. and 9 p.m. were 61·1°. On Saturday the thermometer rose to 72·8° in the shade; on Sunday it fell to 49·0°. The rainfall was 0·016 inch on two days, ·008 inch being measured on both Sunday and Monday. The prevalent winds were first W., then E.

The rainfall in Dublin during the six months ending June 30th amounted to 14·361 inches on 109 days, compared with 9·624 inches on 78 days in 1893, 11·770 inches on 97 days in 1892, 8·748 inches on 77 days in 1891, 13·413 inches on 94 days in 1890, 10·576 inches on 97 days in 1889, 12·113 inches on 87 days in 1888, 6·741 inches on 67 days in 1887, and a twenty-five years' average of 12·313 inches on 95·4 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in June, 1894, was 1·685 inches, distributed over 11 days. Of this quantity ·560 inch fell on the 17th, and ·350 on the 4th. The total fall since January 1 has been 17·381 inches on 96 days, compared with 11·776 inches on 75 days during the corresponding period in 1893.

The rainfall at Cloneevin, Killiney, Co. Dublin, amounted to 1·56 inches on 14 days. The greatest fall in 24 hours was ·42 inch on the 4th. The average rainfall for June in 9 years was 1·448 inches on 11·4 days. Since January 1, 1894, 14·12 inches of rain have fallen at this station on 105 days, the average rainfall for the six months ending June 30 having been in nine years 10·561 inches on 79 days.

PUERPERAL INSANITY.

We are indebted to the *Pacific Medical Journal* (San Francisco) for the following statistics:—Of 421 admissions of women into the Western Washington Asylum, 25 (5·9 per cent.) were cases of puerperal insanity. Three died of septic complications; 20 (80 per cent.) recovered gradually or wholly; 2 (8 per cent) became hopelessly insane.

PERISCOPE.

THE ASSOCIATION OF BRITISH POSTAL MEDICAL OFFICERS.

THIS Association, which was inaugurated in July, 1893, held its first regular annual meeting upon July 6, 1894, at the Metropole Hotel in London, at 12 30 p.m. The object of the Association—which now embraces the postal medical officers of almost every important city and town in the United Kingdom—is to develop a sense of confraternity amongst the British postal medical officers themselves and to cement the bond of sympathy existing between them and the departmental officials, and to bring men professionally employed in a common work into closer relationship with one another. The Executive Committee of the Association consists of the following gentlemen:—President, Mr. Frank Iliffe, of Derby; Secretary for Ireland, H. FitzGibbon, M.D., of Dublin; Secretary for Scotland, Dr. Dougan, of Glasgow; Secretary and Treasurer, Dr. R. Ritche Gedding, of Nottingham; Dr. Adeney, of Tunbridge Wells; Mr. Walton Brown, of Belfast; Dr. Coates, of Streatham; Mr. Dunn, of Wolverhampton; Mr. Husband, of Manchester; Mr. Thornton, of Margate; Mr. Walker, of Middleton. There was a large attendance of members of the Association, which now numbers over one hundred. Several questions of importance affecting the postal medical officers and the well-being of the officials under their medical charge were freely discussed, and some referred to committees for report at the next annual meeting. The following resolution was unanimously passed.—"That we, postal medical officers, having noted the recent request by the Postmaster-General upon the subject of intemperance among the employés of the Department, hereby pledge ourselves as an Association to assist him by every means in our power in eradicating it wherever it may be found to exist." After some further routine business the meeting terminated with a vote of thanks to the President. At a later hour the annual dinner of the Association was held, when a large gathering of members and guests had a most successful and enjoyable evening—a veritable re-union of the Rose, the Thistle, and the Shamrock. [We may be allowed to express an opinion that the inauguration of this Association will redound to the public advantage, and to the efficiency of the Postal Medical Service, as well as to the welfare of the employés of the General Post Office.—EDITOR, *D. J. M. S.*]

AUTOPSY ON M. CARNOT.

THE official report of the *post-mortem* examination in the case of the murdered President of the French Republic was communicated to the newspapers in the following terms:—"The undersigned doctors of medicine have this day made an autopsy in the case of the President of the French Republic. They verified the existence of the following lesions. The wound was situated immediately below the false ribs on the right side, 3 centimètres (1⅛ inches) from the xiphoid cartilage. It measured from 20 to 25 millimètres in length and the blade in entering had completely severed the corresponding costal cartilage. The blade of the poignard had pierced the left lobe of the liver at a distance of 5 or 6 millimètres from the suspensory or falciform ligament. It had perforated the organ from left to right and from above downwards, wounding in its path the vena portæ, which it had opened in two places. The course of the wound in the interior of the liver is from 11 to 12 centimètres in length. This double perforation of the vein was unhappily the cause of a fatal intra-peritoneal hæmorrhage.—Lyons, June 25, 1894. Signed, Dr. Lacassagne, Henri Contagne, Ollier, Rebatel, Poncet, Lépine, Michel Gangolphe, Favre."—*Lyon Medical*, 1er Juillet, 1894.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Curtis's Meat Juice.

THIS preparation is made by Messrs. Curtis and Company, of 48 Baker-street, London, W. The firm state that only the finest English beef is used in its manufacture. It is freely miscible with water, and is recommended to be given in teaspoonful doses in a tablespoonful of cold or warm (not hot) water as required. The specific gravity is 1·238. When boiled a considerable quantity of coagulated albumen separates, showing that the meat juice could not previously have been subjected to a high temperature—that is, during the process of manufacture. Chemical analysis obtained by the firm gives the following results:—

Organic constituents containing 4·8 °/₀ nitrogen:	
Albumen - - -	2·3 per cent.
Extractives soluble in alcohol -	26·8 „
Extractives insoluble in alcohol -	4·5 „
Inorganic constituents:	
Potassium phosphate - -	7·5 „
Sodium chloride - - -	2·8 „
Calcium phosphate and other salts -	2·5 „

An analysis made in the laboratory of the *Lancet* proves that this preparation consists, as stated, of the juice of fresh beef expressed in the cold. A dilute solution of the juice in water gives accordingly, when viewed with the spectroscope, the two absorption bands characteristic of hæmoglobin, and on boiling the solution the albumens coagulate, carrying with them the red colouring matter, so that the clear solution no longer exhibits the spectrum peculiarity. Quantitative examination yielded the following results: water, 63·53 per cent.; meat principles, 29·93 per cent., containing 5 per cent. nitrogen; mineral matter, 6·54 per cent. It is, therefore, a beef juice, in which the nourishing properties are contained unimpaired.

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SEPTEMBER 1, 1894.

PART I.

ORIGINAL COMMUNICATIONS.

ART. VIII.—*Notes on Medicine and Surgery.* By SIR PHILIP C. SMYLY, M.D., F.R.C.S.I., Surgeon to the Meath Hospital; Surgeon to the Hospital for Throat and Ear Diseases.

ON THE TREATMENT OF ENLARGED HEART BY CERTAIN MOVEMENTS, AS TAUGHT BY DR. TH. SCHOTT OF BAD NAUHEIM.

FROM the time when "no man knoweth to the contrary" various diseases of the heart have been treated, and treated with success, by baths and mineral waters in Germany.

At Nauheim the baths have become very famous of late years, from the observations and teaching of the two brothers, Dr. August Schott and Dr. Theodore Schott.

The baths at Nauheim have been described by Dr. Wm. Bezly Thorne in the *Lancet*, and Dr. Th. Schott has published a pamphlet in English on the same subject.

The object of these notes is to call the attention of the profession to a very interesting development of the method of the brothers Schott. It is the outcome of many years' observation of the crowds of cases of heart disease that year after year visit Nauheim.

"As a result of my own and my brother's researches on the subject, Nauheim has gained a well-merited reputation for the treatment of all forms of heart disease.

"We have shown that the thermal-salt-iron springs, administered in graduated courses, afford an excellent means of strengthening weakened heart muscle, and have proved, by their means, as by digitalis, the action of the heart may be rendered both stronger and slower.

"I may here state that in certain cases I employ in conjunction with the baths that form of physical exercise which has been termed 'gymnastics with resistance' (Widerstands-gymnastik), in others 'self-restraining gymnastics' (Selbst-hemmungs-gymnastik)."

Dr. Schott found after a time that good results could be obtained in certain cases without the baths—by the exercises alone.

This is the important part of the Schott treatment, so far as the profession at home is concerned—because the patient can be treated without taking a long and maybe dangerous journey.

Dr. Th. Schott says, "I wish every medical man to know this treatment, for only the few, with big hearts, can come to Nauheim, the many must stay at home."

The treatment of large and weak hearts by exercise is not new, as Dr. Robert H. Babcock points out in his interesting paper on Dr. Schott and Nauheim. (Mississippi Valley Med. Ass., Oct. 8, 1893.) "The great Stokes suggested exercise and mountain climbing. Strange to say, his suggestions were but little heeded. . . . During the last decade the recommendation of Stokes was revived and put in practice by Oertel of Munich."

THE NAME.

To the English ear the name "gymnastic" is rather alarming. In Germany a gymnasium is a school for teaching boys—not, as with us, a place for athletics.

The necessity for rest in cases of enlarged hearts is so obvious that the mention of exercise at once raises objections to the treatment.

Lichtheim and Sommerbrodt in Germany have shown that Oertel's treatment has not only been followed by positive injury but even by death.—(Babcock, *id.*)

I would, therefore, suggest a name, simple as well as descriptive—"Motions to relieve oppressed heart." This, I think, conveys the idea and indicates the object of the treatment, "without prejudice."

Gymnastic conveys the idea of ropes and vaulting bars and athletics.

The idea that this treatment is directed to the heart in the first instance, and is used with a view to strengthen the muscle of the heart, at once raises prejudice against it. "I cannot but think that, in a large weak heart hindered in its action by adherent pericardium, any such exercises must be injurious"—is a remark made by many.

From a very careful study of Dr. Th. Schott's papers, and personal inspection of cases treated by Dr. Schott at Nauheim, and by Dr. Bezly Thorne in London, I am satisfied that this is not the case.

If it were accepted that the action of these Schott movements (exercises—gymnastics) is to relieve the burdened and dilated heart and not to stimulate and strengthen it, then, and not till then, will the shadow of the objections to the Oertel treatment be removed from the treatment of Schott.

Gymnastics for a man who cannot move in his chair without becoming breathless!

Yet Dr. Schott, Dr. Bezly Thorne, and others put their patients through these exercises every day without producing any distress.

The shallow, laboured breathing ceases, and deep inspirations can be taken with ease.

The œdema and swelling of the limbs disappear.

The serous cavities, pleuræ and peritoneum empty.

The heart resumes its normal action, and in time becomes diminished in size.

Surely these results are not due to any direct influence on the heart itself. Compare other treatments and the results obtained. How does digitalis act? It relieves the heart by increasing the blood-pressure in the arteries. It increases the secretions. "By raising blood-pressure within the glomeruli it increases the flow of urine, as demonstrated by Brunton. By increasing the dose he raised the blood-pressure so high that the secretion of urine stopped entirely, and as it began to fall the urine began to flow again."—(Whitla, p. 300.)

This is curiously illustrated in the case of the late Abraham Colles, reported by Dr. Stokes and quoted by Hayden:—"He suffered from paroxysms of dyspnœa, which were generally preceded by diminution in the secretion of the kidneys. On each attack the tumefaction of the liver increased with great rapidity. No relief was ever obtained until free action of the kidneys was established, but it was found that this could only be effected by the use of mercury followed by diuretics. On various occasions the symptoms had gone so far as to cause complete orthopnœa, with anasarca and alarming pulmonary congestion." Relief was obtained by relieving the peripheral resistance (?)

Next take the action of the baths at Nauheim and some other places. Dr. Babcock says, p. 3:—"Whatever be the *modus operandi*, it is certain that we observe, as a result of these baths, a slowing of the pulse with increased volume and strength—at the same time the irregularity, if such have existed, is lessened or even disappears. If properly administered, these baths occasion gradual and perceptible amelioration of symptoms. One of the most pronounced results which is specially apt to attract the patient's attention is improved diuresis, indicating lessened renal congestion."

Dr. Schott says the action of the baths is—(1) the heart beats more slowly and strongly; (2) the pulse becomes full and increases in force; (3) the breathing becomes regular and quiet; (4) the patient becomes flushed, and a feeling of comfort and warmth ensues; (5) an inclination to sleep.

The movements to a certain degree are followed by the same results. Take, for example, four phenomena:—

1. The colour before the movements is a purple-blue in the cheeks and hands and feet.	1. The colour after 20 minutes or so becomes red, and the blue gradually disappears from the hands and feet.
2. The forehead, neck, and ears, &c., are a waxy white.	2. The forehead, neck, and ears, &c., become pink.
3. The pulse is rapid and blood-pressure low in the arteries.	3. The pulse slows and becomes full, the blood-pressure rises.
4. The area of dulness over the heart is large.	4. The area of dulness diminishes at times as much as an inch or more in diameter.

The diminution in the area of dulness after the treatment is most remarkable. I have in several cases measured half an inch or more after the movements had been used for twenty minutes.

Dr. Schott gives the following measurements in one of his cases, checked by Prof. von Jürgensen:—

	Vor der Gymnastik	Nach ½ stundiger Widerstands Gym.	Differenz
Sternocardiallinie -	20 cm.	16 cm.	4 cm.
Ausdehnung des rechten Ventrikels in der Hohe der Mammilla -	8 cm.	3 cm.	5 cm.
Untere Lebergrenze -		Differenz 2 cm.	

This "Gymnastik" Dr. Schott, in his paper, "Zur Differentialdiagnose des pericardial Exudats und der Herzdilatation,"[a] uses this decrease in the area of dulness as a means—not dangerous to use—whereby we can with certainty distinguish between pericardial exudation and heart dilatation. "As such a help I can recommend the 'Gymnastik,' which appears to me the most satisfactory means of diagnosis in the cases under consideration, and should the cause be heart dilatation, the carefully planned and suitable 'Gymnastik;' especially in such cases the resisted movements are, after a longer or shorter time, followed by a marked diminution in the size of the heart. No diminution if the extension or area of dulness is due to exudation."

These results cannot be due to an increased action of the heart, or to what Mr. Symons Eccles, in his very interesting and instructive article in the *Practitioner* for August, 1894, p. 113, calls "active relaxation of the muscular walls of the heart."

These results are due to:—

1. Increased arterial circulation, due to "the diminution of peripheral resistance." [b]

2. Diminished venous congestion, due to larger quantity of red blood in the arteries.

3. Diminished work for the heart, due to the free circulation of the blood in the arteries.

The heart has less to contract upon, and in consequence contracts more completely. "Motions without design weaken the heart, motions with design, on the contrary, strengthen the heart." [c]

This aphorism is, no doubt, ultimately true, but there will ever be a feeling against this treatment until it is clearly seen and believed to be true:—

1. That the movements relieve the back pressure on the heart.

2. That the diminution in the size of the heart is due to the absence of excess of blood in its cavity.

3. That this is attained by there being more room in the arteries.

4. That the heart muscle gains strength by having room to contract.

5. That the contraction being more complete it takes a longer time, thus making the pulse slower, and at the same time fuller.

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[a] Berlin klin. Wochenschrift. 1891. No. 18.

[b] Mechano Therapy. A. Symons Eccles. Pract. Aug., 1894, p. 114.

[c] Planlöse Bewegungen sind ein Herzschwächungs, planmässige Bewegungen dagegen ein Herzstärkungsmittel. Dr. Th. Schott. *Loc. cit.*

6. Being able to send on more blood it is ready to receive more, and thus removes venous congestion.

7. The strength gained by the heart is due to the freedom to contract fully.

The motto we might adopt for the mode of treatment might be—

"Clear the way."

The resistance in the arteries is removed, therefore the heart drives the blood with less effort.

The comparatively empty heart receives its blood more freely, the veins become less turgid, the various organs are relieved, the congested lungs diminish in size and increase in capacity for air, the breathing becomes slower and deeper, the congested liver retires behind the edge of the rib, the kidneys act freely, the ascites leaves the peritoneum, and the pleural effusions vanish.

All these methods of treatment have their dangers more or less. The dangers of the Oertel treatment have been alluded to before. The dangers of digitalis are well known. The dangers of the baths are shown by Dr. Schott himself:—"The increased tissue change calls for great care on the part of the physician, for an excess of bathing seems to induce an excitable state of the nervous system with all its resulting pernicious effects: sleeplessness, loss of appetite, and consequent loss of strength."

The treatment by movements also requires care, but with care they are quite devoid of danger.

"Oh, if people only knew it,
"Many a time and oft they rue it
"Just because they overdo it!"

I do not in this paper describe the motions or gymnastics because Dr. Bezly Thorne promises in a short time a paper on the subject, illustrated with photographs of the various positions.

I will conclude with a few notes of a very typical case, showing—

1. The importance of the movements without the baths, followed by such an improvement that the patient was able to undertake the journey to Nauheim.

2. The value of the Nauheim baths in removing the ascites and pleural effusion.

3. The interesting observation that the symptoms returned when the movements were discontinued for some weeks, though massage was continued regularly.

Case.—Miss X., aged seventeen, had been ailing for some time.

Oct. 20th, 1893.—She had an attack of faintness and swelling of the feet and ankles.

Feb. 24th, 1894.—She came under my care. She was very low and weak; anæmic; hands and feet œdematous and very blue; general anasarca; ascites well marked, and fluid in both pleuræ. The area of the heart dulness was well defined to the right side of the sternum, but could not be outlined below or to the left side on account of the dulness from the pleural effusion. The skin was white and waxy on the forehead, ears, and neck. The cheeks were a dark purple-blue. After a very careful examination the diagnosis arrived at was—Dilated heart with patent foramen ovale (possibly); obstructed arterial circulation; with venous congestion of all the organs. No albumen in the urine. Began the resisted movements for twenty minutes every morning about 11 o'clock, and massage by an experienced masseuse every evening. The colour improved every day. The area of dulness diminished, and the pulse became fuller and less frequent. The blue colour improved to a dark red.

March 8th.—In the daily report it was noted:—"She did some additional exercises with more strength. Her pulse was considerably stronger. Her nose bled slightly. She passed a cheerful day."

11th.—"Marked improvement in the pulse. Her colour keeps good all day; very little blue at any time."

17th.—Remarked the healthier appearance of the forehead, ears, and neck.

(From the 20th of March until the 11th of April the movements were omitted—unavoidably—though the massage was continued.)

21st.—"Not a good night—restless and dreaming. Appetite very poor."

April 5th.—"Her colour was very dark and much blue in the morning; got right in the afternoon. Urine very scanty."

6th.—"Swelling of the abdomen greatly increased. Only eleven ounces of urine in twenty-four hours."

11th.—Pain in the right side. Movements begun again, but very slightly, owing to great distress in breathing. Urine, eleven ounces.

12th.—Pain worse. Much swelling; could not lie down in bed. Urine, thirteen ounces. Daily exercises and steady improvement.

20th.—"Better. Urine, thirty-one ounces in twenty-four hours."

22nd.—"The heart rhythm was normal for the first time."

25th.—"The menses showed for the first time since October, and continued slightly for five or six days."

26th.—The patient was moved from one house to another. On being lifted into the carriage she became breathless and very blue. Towards evening she breathed better, but could not lie down. She got little or no sleep, and had to be supported sitting up all night.

28th.—The whole of the right pleura was full. Distress of the breathing rapidly increasing. Assisted by Dr. Cruise I tapped the chest and drew off sixty-two ounces of fluid, clear and yellow. She coughed up a quantity of thin mucus during the afternoon. Temperature 100°. At 10 o'clock, p.m., the temperature was 99°. She could lie down in bed with only two pillows.

May 4th.—Consultation with Dr. Cruise. She was very much improved. Movements were resumed.

11th.—"Was very cheerful all day. Colour a little high, but no blue."

21st.—Left Dublin, 7 p.m., for Holyhead. Next day to London, and on Wednesday had a consultation with Dr. Bezly Thorne.

26th.—Arrived at Nauheim better than when she left Dublin.

28th.—Had her first bath.

June 1st.—Pulse before the bath, 116; after, 110.

8th.—Dr. Schott showed the patient's mother "that the water had gone down a hand's breadth over her stomach."

20th.—Began the gymnastics. From standing during the examination, and the marking out the area of dulness, her pulse was 114; after the exercises it fell to 88, and then rose to 96, and then to 104.

21st.—I saw the patient at Nauheim with Dr. Th. Schott. I could not find any sign of fluid either in the chest or in the peritoneum. No œdema; and the heart's action normal.

July 6th.—Dr. Schott reports the heart very well.

29th.—Dr. Bezly Thorne saw the patient in London, and reports—Wonderfully improved. Cannot detect any wrong sound in her heart.

30th.—Dr. Cruise and I very carefully examined the patient together, and found the heart's action normal and no swelling anywhere. She returned home to all appearance quite well.

At an early part of this case it was mentioned that it appeared possible, from the extreme cyanosis, that some patency of the foramen ovale existed. It is, however, quite possible that this may have been remedied by the contraction of the dilated heart and consequent valvular closure of the foramen.

"93 Merrion-square, W.
"*August 9th*, 1894.

"Dear Sir Philip,

"Having read your paper on the treatment of enlarged heart by movements on the system of the brothers Schott, I beg to add a short note, which, if you wish, you can publish.

"As you know I saw your patient in the most critical portion of her illness, and learned, for the first time, what can be done by these movements, and in confirmation of what you succeeded in accomplishing in a young girl, I now beg to report my own experience of the treatment in a very aged patient.

"Within the last month I met Dr. O'Donoghoe, of Baldoyle, in relation to the case of a very aged gentleman, who was suffering extreme distress of breathing and loss of sleep from a weak dilated heart.

"In addition to the administration of iron and digitalis, and stimulation by a small blister, I used the resisted movements of the arms, and I showed them to Dr. O'D., who fully appreciated their object and value. He and some of the patient's family have still continued them, and the patient is totally changed for the better—sleeps well, has recovered his appetite, and physically shows increased impulse and diminished area of cardiac dulness.

"I remain, my dear Sir Philip,
"Yours most faithfully,
"F. R. Cruise."

Art. IX.—*On an Organism found in Water which is supposed to have caused an Outbreak of Typhoid Fever.*[a] By Sir Charles A. Cameron, Past President and Professor of Hygiene and Chemistry, R.C.S.I.; and Edmond J. M'Weeney, M.D., Professor of Pathology and Bacteriology in the Catholic University, Dublin.

In November, 1892, five cases of typhoid fever occurred in the village of Milltown, near Dublin, and were attended by Dr. Isaac Usher. All the persons attacked resided in the same dwelling, and their respective ages were four, five, ten, seventeen, and eighteen years. The dwelling was a small cabin, damp and in every way unfit for human habitation. The disease set in severely, the temperature running up to 103° and 104° Fahr. Two of the patients died, and the others slowly, but perfectly, recovered.

In December, three members of a family became affected with typhoid fever in a cabin near that above mentioned. Their ages were eight, sixteen, and eighteen years respectively. None of these cases proved to be fatal.

Shortly after, three members of a third family sickened from typhoid fever. Their ages were four, thirteen, and eighteen years respectively. None of these cases terminated fatally. The patients lived in a wretched hovel. The patients had used water from a roadside pump, which, at the request of Dr. Usher, we examined, and with the following results:—

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[a] Reprinted from the Journal of State Medicine. Vol. II. No. 3. June, 1894. Page 89.

Chemical Examination.—The water was slightly yellowish, had a faint alkaline reaction, and contained numerous suspended particles.

One imperial gallon contained—

Total solid matters	60·900 grains
Containing—	
Albuminoid ammonia	0·012 „
Saline ammonia	0·004 „
Nitrogen in nitrites and nitrates ...	1·960 „
Equal to nitric acid	8·820 „
Chlorine	7·753 „
Equal to sodium chloride ...	12·776 „

The amount of albuminoid matter—the really serious impurity of water—was decidedly, but not very excessively, larger in quantity than is met with in good waters. The amount of nitric acid was very large, and indicated that the sources of the water were tainted.

Bacteriological Examination of the Water.—If gelatine plates alone were used in testing the water it might have been passed as fairly good. Plates containing respectively 1 C.C., ·5 C.C., and ·25 C.C. gave approximately 6,000 germs per C.C. capable of development on this medium at ordinary temperatures. The colonies were all liquefying and putrefying, many of them fluorescing, and the others having that greyish concentrically-ringed appearance so familiar to those who study the bacteriology of water. As was only to be expected from the nature of the colonies, the plates were destroyed so quickly that it was impossible to make a satisfactory observation of any typhoid-bacillus-like colonies, supposing them to be present. The following procedure was, however, adopted:—Ten drops of the water were introduced by means of a sterilised pipette into a tube containing 5 c.c. of sterile nutrient agar-agar, kept liquid at 45° C., and dilutions made into two other tubes of the same kind. All three were poured into Petri's capsules, placed in the incubator, and subjected to a constant temperature of 37° C. Nos. 2 and 3 remained sterile. The original plate bore at the end of twenty-four hours a pearly white colony, with slightly translucent edges. This colony became the mother of the very numerous cultures we have made, and from the characters established by means of these cultures it will be seen that the organisms appear to be intermediate between the *Bacillus typhosus* of Eberth and the *Bacillus coli communis* of Escherich.

Morphology of the Organism.—It is a short bacillus with rounded ends, indistinguishable in appearance from the Bacillus typhosus or the Bacillus coli communis. Its length is from 1·5 to 3 μ. No spores appear in it, and it exhibits no tendency to form filaments, but appears as oval diplobacilli cultures.

Mobility of the Organism.—Sometimes in pendant drops swarms of the bacilli were observed darting in and out of the microscope field with extraordinary rapidity. This appearance was not often noticed, and then only when growth had taken place at relatively low temperatures—viz., 15° to 20° C. Usually the movements of the organisms were rather sluggish, and sometimes there were none at all. If there were any cilia present they were not observed.

Staining the Organisms.—This operation was most successful with fuchsin solutions of various compositions; but Gram's method did not answer at all.

Cultural Characteristics.—On meat peptone gelatine at 22° C. large, irregularly circular white colonies were formed. They thinned off at the edges into translucent whitish marginal layers. No liquefaction ever took place.

On agar-agar at 37° C. circular pearly white colonies without distinguishing features were developed.

Stroke culture in gelatine assumed the form of rows of spherical white granules, extending to the very bottom of the test tube, and exhibiting on the surface a faint bluish appearance.

Stroke cultures on the original gelatine gave a thin bluish-grey expansion, with wavy edges spreading over the entire surface of the obliquely consolidated substratum.

Stroke culture on agar-agar at 37° C., uncharacteristic thick white streak.

On potato, when the disc was acid, a thick yellowish grey scum developed, the shade of which gradually passed over into a flesh colour. With an alkaline disc (by use of ·5 per cent. solution of sodium hydroxide dropped on between the sterilisations) an "invisible" transparent film developed exactly like that of the Bacillus typhosus under similar circumstances.

Potato treated with solution of sodium chloride, and with solution of soda of strengths other than that above mentioned were also tried, with various results, which will form the subject of further communications.

In liquid substrata, the organisms produced turbidity with formation of a copious greyish-white precipitate. The liquids used were flesh water (according to Koch, without peptones or salt), bouillon (according to Koch), and peptone solution, chiefly 2 per cent. in strength. In these substrata the effects of temperature were highly remarkable.

Effect of Temperature.—On gelatine and agar-agar the organisms grew rapidly at all temperatures between 16° and 37° C. In liquid substrata it grew far better at 22° C. than it did at 37° C. when the substratum contained peptone. When the substratum contained glucose, rapid growth and fermentation took place at 37° C.

Gas Formation.—(*a*) In peptone solutions the growth was accompanied by the formation of an extremely offensive gas; the odour of the gas was doubtful only at temperatures below 25° C. It was strongest when the tubes containing a trace of peptones dissolved in distilled water were sterilised and inoculated and placed in a cool place. An intensely putrid odour, distinguishable on approaching the tube, and before the plugs were withdrawn from them, was developed. Similar tubes at 37° C. gave no odour, and exhibited but slight turbidity, whereas the turbidity of the cool peptone tubes was extreme.

(*b*) In saccharine solutions, agar-agar, containing 2 per cent. of glucose, formed a particularly favourable medium for the observation of gas formation, the whole contents of the tube after twenty-four hours at 37° were foamy and opaque from presence of gas bubbles; and at this temperature, when there was a considerable amount of substratum in the tubes, so great was the pressure below that the upper layers were usually driven up and forced with the plug out of the tube. This phenomenon occurred occasionally with almost explosive violence.

Solutions containing lactose also fermented, but only about one-half so much gas was generated from the same amount of material at the end of the same period. The gas evolved from the glucose has no peculiar colour. It is curious that it only generates about 3 per cent. of carbon dioxide, and that it is nearly altogether composed of hydrogen gas, with a little carburetted hydrogen.

Oxygen Requirements.—The organism grows independently of oxygen, provided glucose or lactose be present. It seems to be absolutely anaërobic under these circumstances. In the absence of saccharine matter and in the presence of peptones or other albuminoids, whether or not anaërobiosis is possible cannot be positively affirmed. An experiment with eggs after Hüpper's method gave negative results, which would tend to show that the organism connot commence to split up proteids without the presence of oxygen. This result must be, until further confirmed, received with caution.

Pathogenesis.—Rabbits were intra-peritoneally inoculated with 2 cc. of bacillus culture, and although they were more or less ill for a day or two, they speedily recovered. Rabbits inoculated at the same time with the same quantity of *Bacillus coli communis* culture died in less than twenty-four hours with collapse. A *post-mortem* examination revealed the existence of the bacillus in their hearts' blood and in the turbid exudation from the peritoneum. A rabbit killed a fortnight after the intra-peritoneal inoculation of the Milltown organism showed no sign of peritonitis or of exudation into the peritoneal cavity. Mice fed for a week with bread soaked in the cultures got ill for a time, but eventually recovered.

Reactions with Special Methods.—Cultivated on Gasser's fuchsin agar, it behaved like Bacillus typhosus, forming a bright scarlet streak along the inoculation tract and bleaching the adjacent substratum. It gives the indol reaction by Kitasato's method, though not so strongly as Bacillus coli communis.

It will thus be seen that the Milltown water organism, as it may be termed until some definite name is conferred upon it, resembles Bacillus coli in its energetic power of fermentation, its appearance on plates, and in its indol reaction. It resembles Bacillus typhosus in its occasional exhibition of energetic mobility, its mode of growth on potato, and its want of pathogenesis when administered to animals in ordinary doses. The slight indol reactions even (when putrid peptone cultures were tested) was very striking.

The closeness of the resemblance presented by this organism to both Bacillus typhosus and Bacillus coli would render it liable in the highest degree to be mistaken for either of those organisms. It is, therefore, desirable to place on record its distinguishing peculiarities. Further investigations will probably prove whether it is a variety of either Bacillus typhosus or Bacillus coli, or an intermediate organism developed under the influence of peculiar environment, to which latter view we are disposed to incline. The researches of Rodet and Roux seem to show that the *Bacillus coli communis* which may exist in the human organism without doing injury to the latter, can become highly virulent and infective when introduced into water; becoming in fact the microbe of enteric fever. If this be true it seems likely that there would be produced a series of intermediary organisms between the two bacilli, one of which may be the Milltown organism. The protean forms of typhoid fever suggest the idea of a plurality of poisons, but closely allied.

That the outbreak of typhoid fever at Milltown was due to the presence of the organism which we have described in the water drunk by the persons affected we are unable to affirm. We may, however, say that we should ourselves be very reluctant to drink water containing the Milltown bacillus.

ART. X.—*Suture of Sciatic Nerve.*[a] By J. DALLAS-PRATT, M.A., M.D., B.Ch. (Dub. Univ.), F.R.C.S.I.; Surgeon to Jervis-street Hospital.

THE case which I submit is one which I consider to be of very great interest—first, because it is, so far as I can find out, one of very great rarity, and, secondly, because the result of the operative measures adopted has been so successful:—

CASE.—J. C., a fitter, aged sixteen years, a delicate-looking youth, small for his age, and badly nourished, was admitted to Jervis-street Hospital on the 10th of February, 1892. He was suffering from a very large lacerated wound of the right thigh. He came to hospital at about 8 o'clock, a.m. The wound was situate on the right limb close to the fold of the nates, and was at right angles to the long axis of the leg, it was quite six or seven inches in length, and extended from nearly the middle line on the inside, to within a short distance of the middle line on the outside. All the structures at the back of the thigh were divided down to the femur, including the great sciatic nerve; the wound gaped to the extent of at least five inches. It had been inflicted about two hours before I saw him, in the following manner:—The workshop in which he was had a large horizontal shaft on which were a number of pulleys driving machinery. He proceeded along a girder, to put a belt on one of these whilst it was in motion. It so happened that the particular pulley had a piece broken out of the rim; in trying to put on the belt it caught him and threw him against the pulley, he became wedged between the revolving edge and the girder, the former with the bit out was practically a circular saw, and before the engine could be stopped the wheel had cut through the back of his thigh making the wound already described. In addition to this a quantity of machine black, lubricant, and portions of clothing were ground into the wound. There was comparatively little pain and no hæmorrhage. I at once had him put under the influence of an anæsthetic (ether) in the operating room, and proceeded to clean out the wound with warm carbolic lotion (1 in 40). The removal of all the extraneous matter was a task of great difficulty and required some time. I next looked for the ends of the divided nerve and found them in a very lacerated condition, so much so that I was obliged to remove nearly half an inch of each in order to get a clean and solid surface to suture. Of course when this was done the ends did not come together, so I stretched first one and then the other until they came together without tension. They were then united by means of three sutures of fine carbolised silk used in a small needle—two of these were passed through the sheath of the nerve one on each side, the third through the substance of it in the centre. In the case of all six punctures, the distance from the cut end of them was about a quarter of an inch. I next sutured all the muscles with the same material and brought the skin together by means of hare-lip pins. Having dusted all the surfaces with iodoform, the whole was then dressed with alembroth gauze. The thigh was extended and the leg flexed as much as possible and fixed in that position on a splint.

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[a] Read before the Surgical Section of the Royal Academy of Medicine in Ireland, March 30, 1894.

Feb. 13th.—Temperature, 101° F.; the patient was in some pain, but the wound which was dressed looked well.

14th.—Temperature, 100° F.

16th.—Temperature, 99° F.

From this time the patient made a good recovery, the only complication he had being a small number of trophic ulcers on his toes—these, however, healed without much trouble, and by the 1st of March the wound was reduced to a superficial ulcer.

By May 1st he had recovered the use of his limb sufficiently to be able to walk fairly well. He left hospital on the 8th of May with fairly good use of his leg, he had also got back the sensation in all parts of the limb except the dorsum of the foot and toes.

Suture of nerves may for convenience be divided into primary and secondary; I will, however, confine the few remarks I have to make to the former class of cases, on which the present one bears more closely. Although the idea of the repair of divided nerve trunks was considered by Galen, it was in his time and for long after rejected as quite an impossibility. It was not until 1795 that Haighton and Cruikshank, who made experiments on dogs, showed that if one pneumogastric nerve be divided and the dog kept alive for a certain time, section of the other would not cause death, though simultaneous section of both was always fatal. This they considered satisfactory proof that regeneration of the nerve first divided had taken place.

The result of these experiments was an idea that all cut nerves underwent regeneration without any treatment of any kind, and this view appears to have been looked on as correct and satisfactory down to 1852, when Waller made further investigations which tended to show that the peripheral ends of divided nerves underwent degeneration, and that it required several months to effect repair. There appear to have been cases where divided nerves are said to have been sutured in the middle ages, but they are not authentic. Dupuytren did the operation more than once, and it is reported to have been done previously, in 1826 by Arnamann, and in 1828 by Flourens; apparently the great fear of tetanus from any interference with nerves, and the still existent idea that all cut nerves would unite without treatment, deterred others from suturing them. A case of primary suture of the median nerve took place in France in 1864, and primary union was claimed. In 1865 Landois made a number of experiments which went to show that both of the divided ends degenerated, and he therefore argued that there could be no use at all in suture.

The result of all later experience shows that there is little or no special danger in suturing nerves, and that the patients have a much better chance of a favourable result than they would without stitching. With regard to the mode of operating, it was formerly held that the suture should in all cases be passed only through the sheath, and never through the substance of the nerve, lest some nerve irritation should be set up. This appears an error. Suture of the sheath alone may be sufficient in the case of small nerves, but in the larger ones might fail to bring the ends properly into position. The really important point is to pass the sutures through at a distance of quite a quarter of an inch from the cut surface.

With regard to the material for suture, catgut has been used in the majority of cases, and is probably the best for small trunks. For larger ones, or where there is any unusual tension, it is better to use something harder. Mr. Bowlby prefers chromatised gut or kangaroo tendon. The silk, however, seemed to answer all purposes in my case. The last-named writer thinks it best to pass, in the case of large nerves at all events, the third suture through the trunk in a direction at right angles to that of the other two. This was not found to be necessary in the present case.

Up to 1885 Mr. Bowlby had collected 81 cases of primary nerve suture, of which 32 were successful, 12 doubtful, 22 partially successful, 14 failures, and 1 the result of which was not stated.

Of all these only one was the great sciatic, and as it was only under observation for thirteen days the result is, I suppose, one of the doubtfuls. Mr. Bowlby also informs me that since 1885 he has not had, or heard of, a similar case to mine.

Park, of Chicago, described, in 1884, a case of rupture of the sciatic nerve with restoration of function.

The special feature in the present case was the removal of so much as an inch of so large a nerve trunk, and this, owing to the lacerated state of the ends, was unavoidable. I might, then, instead of stretching the nerve, have, as is recommended by some, made a transverse incision half through the thickness of the trunk, at some distance from the cut end, and then split the nerve from that point almost to the end, turning the piece so separated round and suturing it to the other end, or to a similarly separated portion; but it seemed to me a much more simple and rational plan to approximate the ends by stretching, and one that I judged would give the patient a better chance of a good result.

ART. XI.—*Tetany.*[a] By ALFRED R. PARSONS, M.B., M.Ch.; Assistant Physician, Sir Patrick Dun's Hospital.

TETANY—a disease characterised by a peculiar spasmodic contraction of some of the muscles of the extremities—has a remarkable geographical distribution. Originally described by Steinheim in

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[a] Read before the Section of Medicine, in the Royal Academy of Medicine in Ireland, on Friday, April 6, 1894.

Germany and Darlo in France some sixty years ago, the majority of the recorded cases seem to have occurred in these countries. In South Germany and the German-speaking portion of Austria, especially in Vienna, the disease is by no means uncommon. In the interval between 1880 and 1889 some 360 cases were admitted to the General Hospital of the Austrian capital. This number is just 0·7 per cent. of all the nervous cases admitted during that period. In Heidelberg several cases have been observed and recorded by Erb. On the contrary, in North Germany the disease is exceedingly rare; and among the nervous cases admitted to the hospitals of Berlin tetany was present in the proportion of 1 per 1,000, or 0·1 per cent. Writing of Leipzig, Strümpell describes it as one of the rarest nervous disorders. Up to 1889, according to Stewart, only 6 cases had been recorded in America. Coming nearer home, isolated cases have been described in England and Scotland since Moxon reported one which occurred in Guy's Hospital in 1869; but even Dr. Gowers, who has a very extensive experience of nervous disorders, had, up to 1888, personally observed only 8 cases. In Ireland the disease would appear to be still rarer, as, so far as time and opportunity have permitted me, I have been able to find no recorded case. It has, however, been occasionally observed, as Dr. Craig has been good enough to tell me that he has seen one or two cases at the Children's Hospital, and Dr. Purser kindly informed me that he has met with it on a few occasions in young women.

While no age is exempt from tetany, there are certain periods especially prone to it. In young children, according to Erb, the maximum number of cases occurs from the fourth to the sixth year. Next to this period, the disease is most frequently met with in young adults from sixteen to thirty years of age. It is so common, comparatively speaking, in parts of France among nursing women that Trousseau once described it as the "rheumatic contraction of nurses." A large proportion of the cases in Vienna occur each spring amongst shoemakers' apprentices, hence it is often spoken of as "Schuhenkramf." In fact, the outbreak is so regular that the late Professor Kohler looked upon it as an epidemic disease, most probably of bacterial origin.

The immediate exciting cause is generally undiscoverable, but, especially in young children, severe diarrhœa is not an uncommon antecedent. The typical spasm occasionally follows some of the acute infective diseases, and is stated to occur as a sequel to complete excision of the thyroid, but is not found when one-fifth of the gland is left behind.

The case of this disease which I would wish to lay before the Academy occurred in a pupil of one of the public schools of this city with which I am connected as visiting physician.

The clinical notes are as follows:—

A. B., aged fourteen years, has enjoyed fairly good health for some years past. Owing to the death of both his parents from phthisis no distinct history of his childhood is obtainable. He is well-developed, but is rather dull and stupid. Since coming to the school, however, he has improved mentally and physically; and though of a retiring and unsociable disposition, now manifests more interest than formerly in school games. He states that for some three or four years past he has had attacks of pins and needles, tingling and numbness in his forearms and hands. These attacks have sometimes been very frequent, occurring every two hours, though lasting only twenty seconds. They have not till quite recently been followed by any muscular spasm.

In the forenoon of the 1st of March he seemed in his usual health, and in company with the other boys went to the football field, which is about one mile from the school. While walking about in the field he was suddenly seized with a severe attack of tingling, followed by spasms in the upper and lower extremities. The cramps in the latter were so severe that he was unable to stand. He lay down on the grass for a few minutes, and the attack having subsided he obtained permission to go home, accompanied by another boy, but had only covered part of the distance when the cramps again set in, and the journey had to be completed in a cab. On reaching the school the Principal, fearing that it might be an attack of epilepsy, sent for Dr. Craig, who resides in the neighbourhood. Dr. Craig, in addition to several other particulars, noticed that the lower extremities were rigidly extended—the feet also extended and inverted. I saw the patient half an hour later. His face was then flushed and his eyes closed. On being asked to open the latter he did so, slowly and incompletely, but no actual spasm of the orbicular muscle was noticed. A request to show the tongue was responded to by partially protruding it through an imperfectly opened mouth. The tongue was coated; the bowels had not moved since the previous day.

An examination of the thorax disclosed a marked dilatation of the cutaneous capillaries. The skin was flushed, and he was perspiring profusely. The lungs and heart presented nothing abnormal, except that the action of the latter was very frequent, the pulse being 120 per minute. The frequency of the respirations was also somewhat greater than normal, but no spasm of any of the respiratory muscles was noticed. The axillary temperature was 99° F.

The abdomen was likewise examined, with negative results, except that the bladder was full, reaching almost up to the umbilicus, but there was no difficulty in passing urine.

The most striking phenomena were noticed in his extremities. The arms were flexed at the elbow almost to a right angle; the wrists were also flexed; the thumb was flexed and adducted across the palm; the fingers were flexed at the metacarpo-phalangeal joints, but extended at the others. He was quite unable to straighten his hands; and although the spasm could be overcome by a little steady pressure, and the hand extended, to do so increased the pain, which was most marked about the wrists. Pressure along the inner margin of the biceps for about one minute did not on this occasion increase either the spasm or the pain.

The lower extremities were extended, the foot pointed, the toes flexed, but I did not notice any inversion of the feet. The spasm was distinctly less than when Dr. Craig saw him, and the patient was now able to walk, though with some difficulty, owing to the stiffness of his feet. The right knee jerk was normal, the left was not examined. In addition to the bromides which Dr. Craig had ordered I prescribed a few grains of calomel.

The medicine acted freely during the night, and the following morning he was distinctly better. The spasm and tingling in the lower extremities had almost vanished; his pulse had fallen to 96, though his temperature had risen to 99·8°. He was kept in bed, and the next day I found his temperature normal. The spasm was now almost gone from his upper extremities, but it could be reproduced by pressure over the brachial artery. After thirty-five or forty seconds the patient complained of a prickling sensation in his hands and wrists, and attempted to withdraw his arms. If the pressure were maintained for fifteen or twenty seconds more the spasm came on, and the position taken by the fingers was generally as above described. As Trousseau was the first to point out this remarkable condition it is generally spoken of as Trousseau's phenomenon. It can be excited by pressure on the artery or nerve trunks; and Kussmaul has observed in one case that pressure over the veins was ineffective, while pressure on the artery succeeded. It was more difficult to elicit this phenomenon in the lower extremities by pressing on the femoral artery or sciatic nerve, and I did not try it in this case. On the fifth and sixth days after the onset, though he was apparently quite well and the spasm absent, it could be excited in the upper extremities by pressure. I lost sight of the patient for the next fortnight, after which he went to the country for the Easter vacation. On the day after he left town, greatly to the astonishment and alarm of his relatives, he got another attack, but the spasm lasted only half an hour. Since his return to school I again examined him, but failed to produce anything more than mere tingling in the arm, though I maintained the pressure for about two minutes.

In many cases of this disease the Schultze-Chvostek phenomenon—*i.e.*, great irritability of the nerves to mechanical stimulation—is present. This is generally best marked in the facial nerve, and I have seen some cases in Vienna in which tapping over a branch of this nerve produced a spasmodic contraction in the nerves supplied by it. Tapping and friction were tried in this case, but with negative results. Erb has pointed out that there is in some cases an increase in the irritability of the nerves to electrical stimulation and also an alteration in the mode of response to the continuous current, so that the earliest contraction is obtained by closing the circuit with the positive pole rather than with the negative. No electrical examination was made in this case.

The diagnosis was, I would submit, clear. The case was manifestly not one of tetanus, and differed from hysteria in its bilateral character and peculiar distribution. The boy, furthermore, had never seen any person in a similar condition.

Our knowledge of this morbid state is in inverse proportion to its nomenclature. It has been described under, at least, nine or ten different names, such as—intermittent tetanus, spasmodic muscular retractions, idiopathic muscular spasm, brachiotony, rheumaticus, &c.; but the name by which it is most commonly known is that of tetany, given to it by Corvisart. The nature and situation of the lesion are doubtful. From the bilateral character of the symptoms it would seem probable that the *locus morbi* is central rather than peripheral; and as a few cases have been followed by atrophy of the muscles there may be some alteration in the ganglionic nerve-cells in the anterior cornua of the spinal cord, on which the nutrition of the muscle fibre depends. Such a lesion, however, would not explain the peculiar sensory phenomena.

So long as the nature and cause of the disease are so obscure, our treatment can be only empirical. The drugs which are in the greatest request at present are arsenic and the pharmacopœial bromides. Fortunately, the prognosis is on the whole good, death being very rarely caused by tetany, though in some cases a fatal termination has occurred from spasm of the diaphragm or general exhaustion.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Text-book of the Theory and Practice of Medicine. By American Teachers. Edited by WILLIAM PEPPER, M.D., LL.D., Provost and Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania. In 2 Vols. Vol. II. Philadelphia: W. B. Saunders. London: F. J. Rebman. 1894. Pp. 1,046.

THIS handsome volume completes the "American Text-Book of Practice of Medicine," of which the first volume was published in 1893. The whole work forms a valuable addition to our standard books on medicine. It, generally speaking, represents the latest teaching extant, and the subjects are, to a "Britisher" at any rate, treated from a novel standpoint, and with a freshness of manner which is often most suggestive. An excellent feature is the use of plates, some of them coloured, illustrative of various forms of leucocytes, intestinal worms, Hodgkin's disease, and Addison's disease.

The first article, by W. H. Welch, Professor of Pathology in Johns Hopkins University, treats of the Biology of Bacteria and Immunity. The latter subject is treated carefully and judicially; the writer does not adopt absolutely any of the conflicting theories in vogue at present, but briefly refers to them all; while phagocytosis undoubtedly plays a part, it cannot be looked on as the sole and only method of defence against invading organisms; in some cases, especially of natural immunity, there may be a lack of nutritive material capable of assimilation by the micro-organism in question; the power of the fluids, particularly of the blood, of destroying or antagonising the action of the specific poisons of micro-organisms is the explanation of acquired immunity from a certain number of toxic diseases; then, again, many hold the view that immunity is due to a direct germicidal action of the blood and fluids of the body.

The next part of the work is the production of Dr. H. M. Lyman of Chicago, who describes diseases which are the outcome of the

"Arthritic Diathesis." These diseases he describes as taking their generic name from the fact that they usually occur among individuals who are subject to gout or rheumatism, and he includes under this head biliary lithiasis, gravel, obesity, diabetes, gout, and the various forms of rheumatism. We personally are strongly opposed to such terms as "the arthritic diathesis," when employed in so very vague a way. The average human mind has a strong predisposition to take words as being equivalent to things, names to realities—and we hold that such terms only serve to hide knowledge under a cloud of words and to render more difficult the discovery of facts.

On the whole we are disappointed with this section. The articles appear sketchy and incomplete, and some of the author's views must be looked upon as hardly proven. He believes, for example, that rickets is due to an "acid dyscrasia." "It has been shown that an excess of lactic acid in the stomach and an insufficiency of alkali in the intestines, either as a consequence of fermentation or of deficient biliary secretion, will hinder the assimilation of the phosphates of calcium that are needed for the healthy nutrition of the bones. Now it has been observed that in the majority of rickety children the perspiration, urine, and fæces are characterised by excessive acidity. It is this acid dyscrasia that most seriously interferes with the normal nutrition and healthy ossification of the growing skeleton." This view is possible, but, we think, should hardly have been stated so positively. We note also in this article that insufficient attention is paid to the tendency to convulsions, and no mention is made of the fact that the liver and spleen are often enlarged.

In the article on Obesity we meet with a very curious sentence—a modified albumen sometimes appears in the urine, "*which is non-retractile and is diffused through the urine.*" We confess such a kind of albumen is beyond our comprehension. In the article on uric acid gravel we regret that no mention is made of Sir W. Roberts' work on the Quadriurates.

Dr. Wm. Osler is responsible for the sections relating to the Blood and the Ductless Glands. As might be expected the work is thoroughly first-class. In no work on medicine (including even Dr. Osler's own work) have we met with such a scientific and valuable account of anæmia; special attention is paid to the various forms of leucocytes, and their appearances are made clear by means of a coloured plate. A good account is also given of how to make and stain microscopic specimens of blood. The article also contains descriptions of how red corpuscles, and hæmoglobin are estimated, and the apparatus used is illustrated by woodcuts. With regard to the treatment of pernicious anæmia, Dr. Osler strongly believes in arsenic, and gives it in full doses gradually increasing to from 25 to 30 minims of Fowler's solution thrice daily.

The editor, Dr. William Pepper, has undertaken the Heart, Pericardium, and Blood Vessels. He writes in a clear and practical manner, and illustrates his points with a number of sphygmograms. The treatment of chronic heart lesions is described fully and at length.

Dr. J. C. Wilson, of Philadelphia, is responsible for the section relating to Diseases of the Respiratory Tubes and of the Pleura. The articles on bronchitis seem somewhat meagre, when we consider the importance of the disease. The section on Pleurisy is very good. The author classifies empyemata according to the causative microbes, as follows:—

I.—Simple infection of the pleural exudate.
  A. Common forms:—
    (1) Empyema from infection by pneumococci.
    (2) From infection by streptococci.
    (3) From infection by tubercle bacilli.
  B. Rare forms:—
    (1) Empyema from infection by staphylococci.
    (2) From infection by the typhoid bacilli (Eberth).
II.—Mixed infection of the pleural exudate.
  Common forms:—
    (1) The exudate contains tubercle-bacilli and streptococci.
    (2) Streptococci and staphylococci.
    (3) Streptococci and saprophytic bacteria (microbes of gangrene).

This seems a good classification—it is a pity that it is not always easy in practice to determine to which variety a given case belongs.

Diseases of the lungs are treated of by Dr. Delafield, of New York, the pathological aspects of the diseases being specially well brought out. In common with other American writers, Dr. Delafield objects entirely to the term "Capillary Bronchitis," and holds that the cases described under this name are really cases of broncho-pneumonia, which he defines as "an infectious inflammation with exudation from the blood-vessels, a formation of new connective tissue, and the growth of pathogenic bacteria which involves principally the walls of the bronchi and those of the surrounding air-spaces." He states that the inflammation does not extend from the bronchi into the air-spaces which empty into them: "the essential and constant lesion is a productive inflammation of the walls (not the mucous membrane) of the bronchi and of the air spaces immediately surrounding the inflamed bronchi;" that is to say, the disease extends from a bronchus, not along its mucous membrane to its system of infundibula and alveoli, but through its walls outward to the immediately contiguous alveoli, although these empty into another bronchial tube. We regret that some of the diseases are rather scantily described—*e.g.*, asthma is allotted only two pages.

After a good article on Practical Urinary Examination, by Dr. Holland, Diseases of the Kidneys are discussed by Dr. Delafield. His classification differs considerably from that which is commonly accepted. He recognises—(1) Acute degeneration of the kidneys—including those mild cases which occur in fevers, and which we are accustomed to call "cloudy swelling" of the epithelium, as well as severe and rapidly fatal cases met with in yellow fever and some forms of poisoning; (2) Acute exudative nephritis—acute Bright's disease which does not give rise to any permanent changes in the kidney, and generally soon passes over. (3) Acute productive nephritis—acute Bright's disease in which an overgrowth of connective tissue occurs, causing, if the patient survives the acute attack, chronic mischief to ensue. Chronic cases he thus subdivides:—(1) Chronic degeneration, a fatty degeneration of the kidneys; (2) chronic productive nephritis with exudation, agreeing, roughly speaking, with what is called chronic parenchymatous nephritis and amyloid disease; the latter is not considered a separate disease; (3) Chronic productive nephritis without exudation, corresponding with chronic interstitial nephritis. We think the chief fault in this scheme is that amyloid disease is not recognised as a totally distinct variety.

In the excellent section on Diseases of the Alimentary Canal, written by the editor, Dr. Wm. Pepper, we must give special praise to the description of intestinal parasites. Not only are a number of the rarer parasites described more fully than is usual in most other works, but also the beauty and number of the illustrations call for comment.

The three remaining sections—on the Peritoneum, the Liver, and the Pancreas—are from the pen of Dr. Fitz, Professor of

Pathological Anatomy in Haward Medical School. All are good, but that on the Pancreas is pre-eminently so; in it several rare and obscure affections, such as pancreatic hæmorrhage, gangrenous pancreatitis, disseminated fat-necrosis, and others, are fully and clearly described. Altogether the article is unusually valuable and instructive. We must, however, emphatically dissent from one statement made in the article on the peritoneum, viz.—that after tapping in cases of ascites some oozing from the puncture is beneficial.

Taking the "American Text-Book of Medicine" as a whole, we must confess to a feeling of some disappointment. While we recognise with pleasure that many of the articles in it reach a very high standard of excellence indeed, we feel that others are in no way superior to what we are accustomed to in smaller books. When a man purchases a work such as that before us in two large volumes, costing £2 5s. net, he expects to obtain a full and complete account of medicine to which he can refer when in perplexity. We have come, reluctantly, to the conclusion that this text-book hardly corresponds to its size and price. At the same time, it has many good points; some of the articles, as we have indicated, excel all that we have met elsewhere.

The printing and publishing have been done in first-class style. We wish, indeed, that the type had been rather smaller, so as to leave room for more letter-press.

We may add that the London publisher of this and many other standard American works on medicine is F. J. Rebman, 11 Adam-street, Strand, London, W.C.

Symptoms and Physical Signs: a Formulary of Clinical Note-taking, with examples. By William Ewart, M.D., F.R.C.P.; Physician to St. George's Hospital. London: Baillière, Tindall, & Cox. 1892. Pp. 82.

"What questions to ask and how to arrange the report has puzzled not a few students over their first case." Hence, Dr. Ewart has published this book for their assistance.

The first part of the work, after a list of some suggested abbreviations for common and frequently recurring words, describes, with examples, the general mode in which a clinical report should be made.

The second part consists of an index of signs and symptoms grouped under various headings, intended to suggest to the student subjects to investigate and note down. For example, under the heading Abdomen we find, "*General characters:* shape; size; circumference (measured at umbilicus); tumidity; distension or retraction; hardness or softness; tension or flaccidity.

"*Retraction (Boat-shaped):* in starvation; stenosis of œsophagus or of cardia; tubercular meningitis.

"*Retracted:* in profuse diarrhœa; cholera; severe abdominal cramp."

The book will probably be found useful by students; our only fear is that it may be found somewhat too elaborate, and, therefore, perplexing.

RECENT WORKS ON DISEASES OF THE NOSE, &c.

1. *System of Diseases of the Ear, Nose, and Throat.* Edited by CHARLES H. BURNETT, A.M., M.D.; Emeritus Professor of Otology, Philadelphia Polyclinic, &c. 2 Vols. Pp. 789 and 858. London: H. K. Lewis. 1893.
2. *Clinical Manual for the Study of Diseases of the Throat.* By JAMES WALKER DOWNIE, M.B.; Fellow and Examiner in Aural Surgery for the Fellowship of the Faculty of Physicians and Surgeons; Dispensary Surgeon for Diseases of the Throat and Nose, Western Infirmary; Hon. Aurist, Royal Hospital for Sick Children. Glasgow: James Maclehose & Sons, Publishers to the University. 1894. Pp. 268.
3. *A Handbook of Diseases of the Nose and Pharynx.* By JAMES B. BALL, M.D. (Lond.), M.R.C.P.; Physician to the Department for Diseases of the Throat at, and Physician to, the West London Hospital. Second edition. With forty-nine illustrations. London: Baillière, Tindall, & Cox. 1894. Pp. 364.
4. *Diseases of the Nose and Throat.* By F. DE HAVILLAND HALL, M.D., F.R.C.P. Lond.; Physician to Out-patients, and in charge of the Throat Department at the Westminster Hospital; Joint Lecturer on the Principles and Practice of Medicine at the Westminster Hospital Medical School. With two coloured Plates and fifty-nine Illustrations. London: H. K. Lewis. 1894.

1. THIS fine work is a fresh proof of the energy and thoroughness of American specialists. Subject to some slight drawbacks

inseparable from such "systems" these volumes are admirable in every way. The articles are contributed by writers acknowledged not only in America but also in Europe as leaders in their special branches, several of the papers being furnished by European authors. The various subjects are almost without exception treated in the fullest and ablest manner; the references to authors and cases bear evidence of the keenest research; opinions and views are clearly and fairly stated; and there is a most gratifying absence of dogmatism and exaggerated expression of any special fads.

In such "systems," dealing with limited specialties, it is inevitable that there must be more or less overlapping of the subjects treated of by the various writers, and while this has the advantage of presenting a more varied picture of the subject dealt with, it produces the disadvantage of a scrappy and discontinuous effect.

The two volumes are profusely illustrated with engravings, for the most part excellently executed, and some equally good plates. The indices, both general and of authors, are full and satisfactory.

The first volume deals with diseases of the ear, nose, and nasopharynx, in each case giving a full and accurate account of the anatomy and physiology of the parts.

In the article on Acute and Chronic Otitis Externa the author, Dr. Robert Barclay, of St. Louis, devotes a chapter to "Otitis Externa Diffusa Diphtheritica *seu* Crouposa," the existence of which is denied by some, and in it gives a full account of cases and of the disease generally.

In the chapter on the Syphilitic form of Otitis Dr. Barclay recommends Kane's method of mercurial fumigation, the great value of which we can fully endorse. Dr. Barclay also clearly recognises the very important fact, we fear not sufficiently recognised, that many cases of tertiary syphilis require for their cure the administration of mercury; our experience is quite in accord with this, and it seems probable that very many cases of severe and intractable tertiaries are those in which the earlier stages of the disease have not had a sufficient mercurial treatment, proving its absolute necessity for the cure of the disease, and which if omitted in the early stages is demanded later on.

In the chapter on Otomycosis Dr. Barclay ingeniously finds a predisposing cause in the existence of diabetes mellitus.

A very full and good article on "Foreign Bodies and Osseous

Growths in the External Auditory Canal" is contributed by Sir William Dalby.

The section dealing with "Diseases and Injuries of the Membrana Tympani and Acute Otitis Media," by Dr. Gorham Bacon, is very complete, and includes a chapter on Adenoid Growths in the Naso-Pharynx, in which attention is directed to a temporary enlargement of Luschka's tonsil, corresponding to that occurring in the faucial tonsils; this is a condition which is not generally recognised, but which undoubtedly does occur.

Dr. Samuel Sexton deals with "Chronic Catarrh of the Middle Ear," in the course of which the bearing of *climatic conditions* upon this condition is very fully discussed. This subject of "taking cold" seems to be a favourite topic with several writers in the "system," and there is a general agreement that the frequency of catarrh in America is largely due to the variable climate, and the unhealthy and artificial surroundings and methods of living prevailing there. The treatment of severe and intractable cases of chronic aural catarrh by removal of the ossicles is strongly advocated by Dr. Sexton.

Dr. Christopher J. Colles contributes an interesting paper on "The Middle Ear in Renal, Malarial, Syphilitic, Gouty, Rheumatic, and Dental Diseases," and in treating of syphilitic diseases he expresses his opinion that this cause is not sufficiently recognised, and refers to Sir William Wilde's writings on the subject.

"Chronic Purulent Otitis Media" is dealt with by Dr. Charles H. Burnett, who considers that in many cases the only successful method of treatment is excision of the membrane or its remains, and, if necessary, the ossicles also.

Removal of the Stapes is discussed by Frederick L. Jack, M.D., and full reports of sixteen cases in which the operation was successfully performed and the results therefrom are given.

Articles on Mastoid Disease, Diseases of the Internal Ear, and on Ocular Lesions in Aural Disease, &c., complete this section of the "system."

The section dealing with the Nose and Naso-Pharynx opens with the anatomy and physiology of the parts by Dr. M'Coy, and is followed by chapters on Methods of Examination by Dr. Samuel E. Dabney, on Local Therapeutics by Dr. Clinton Wagner, giving a full description of various remedies and methods of application, fully illustrated. We then find "Acute Rhinitis" treated of by Dr. Bosworth, in which he enters very fully into the subject, including prophylaxis. In connection with the latter the questions of clothing and other allied matters are discussed, and the paper concludes with a quite formidable collection of remedies for the cure of "cold in the head."

Dr. Carl Seiler contributes a paper on "Influenza and American Grippe." For the latter, which he considers is not identical with "influenza," he has invented the name "epidemic myxoid-œdema," which seems only to add a new horror to this unpleasant disease. Judging from the description given the "American" grippe does not seem any less desirable than the European form of the disease, although Dr. Seiler does not consider that there is fever present during the attack, but only an elevation of temperature. The treatment advocated by Dr. Seiler is ten-grain doses of benzoate of sodium, dissolved in half a tumblerful of water, with a tablespoonful of whisky. The latter ingredient will, no doubt, in many cases prove comforting to the suffering patient.

There is an excellent article on "Chronic Hypertrophic Rhinitis" by Ralph W. Seiss, M.D., and we are glad to find a very decided expression of opinion condemning operation on the septum nasi unless absolutely necessary, and we quite agree with him when he says that "all operations on the nasal cartilage are highly uncertain in their results."

This writer's description of "adenoids" and their treatment is exceedingly practical, and may be commended to those interested in this matter. While advising operation in cases where much hypertrophy exists he insists, and, we think, with good reason, that in many cases much can be accomplished by milder measures—such as washes and applications of various kinds to the diseased parts.

John N. Mackenzie, M.D., writes on "Cirrhotic (Atrophic) Rhinitis," or ozæna, and deals with the subject in his usual able and exhaustive way. He advocates a theory of causation of the disease, which is, in his opinion, shortly, a primary simple inflammation followed by hypertrophy, ending in atrophy and destruction of the erectile tissues of the turbinates. The treatment advised is practically the observance of strict cleanliness, with the addition of mild antiseptics—mercurial for choice.

"Lupus, Tuberculosis, Syphilis, Glanders, and Diphtheria of the Nares and Naso-Pharynx" are treated of by Dr. George W. Major, "Foreign Bodies in the Nose and Epistaxis" by Mr. E. Creswell Baker, M.B., of Brighton, and a paper on "Diseases of the Accessory Sinuses of the Nose" by Dr. Joseph H. Bryan closes Vol. I.

Diseases of the nose are continued in Vol. II., and "Morbid Growths and Deformities" are described by Dr. Carl Seiler. We cannot agree with him as to the treatment of gumma in the nose by surgical means; such methods seem uncalled for, and are likely, in the long run, to do more harm than good.

Dr. Jarvis is, of course, *the* authority on "Surgical Procedures in Deformities and Neoplastic Growths in the Nose." The statement that the electric motor used for driving his nasal drill "equals in capacity one-eighth horse power" is somewhat alarming.

There is an excellent paper on "Hay Fever" by Dr. Bosworth, in which he relates the very interesting auto-experiments on pollen, made by Blackley during a period of twelve years. As to treatment, he advocates internally a combination of phosphide of zinci and belladonna, and locally chiefly cocaïn and morphia in various combinations. He considers that the "sensitive areas," described by J. N. Mackenzie, as not of such importance as claimed by their discoverer. This opinion seems to be shared by Joseph A. White, M.D., who contributes a very full paper on "Neuroses of the Nose and Naso-Pharynx." He, however, has comprehensive views as to the reflexes having their origin in nasal troubles, and describes them as affecting in various ways the "eye, ear, nose, mouth, pharynx, larynx, gastro-intestinal tract, skin, heart and circulation, muscles, brain," and enumerates fifty-five such reflexes. Truly "a large order!"

An interesting article, dealing with the connection between the nose and eye, is contributed by Dr. George M. Gould, and the section concludes with a paper on "Skin Diseases of the Nose" by Dr. L. Duncan Bulkley.

The third part of the system is devoted to the pharynx and larynx, and includes papers by such well-known men as Max Thorner, Ingals, Shirley, Knight, Solis Cohen, &c., and a most interesting paper on Leprosy by Dr. Ramon de la Sota y Lastra, of Seville, detailing a large number of cases.

Dr. S. Hartwell Chapman writes well and sensibly on "Vocal Culture and Hygiene," giving a practical and accurate account of voice-production, illustrated by cuts copied from photographs of the larynx during vocalisation taken by Dr. French.

Dr. Max Thorner (acute pharyngitis) points out a fact not usually noticed by writers, but in our experience accurate—viz., that the abscess in quinzy is usually *peri*-tonsillar, and points above and to the inner side of the tonsil. He also gives a short but good account of gouty pharyngitis.

An excellent article on Acute Tonsillitis is that by Dr. C. E. Bean, in which he recognises the rheumatic origin of the affection, advocates early incision, condemns silver nitrate, and extols sodium salicylate, but does not seem to give guaiacum the place it deserves in the treatment; we are quite convinced of its power of cutting short or modifying an attack if given *early*.

We cannot share the faith which Dr. Ingals seems to place in dilatation of the cicatrices resulting from tertiary syphilitic ulceration; we have always found them end unsatisfactorily.

The article on Diphtheria, by Dr. J. Lewis Smith, is most excellent in every respect.

Dr. Knight's paper on Chronic Disease of the Tonsils is thoroughly practical. His directions for their excision are quite to the point, we prefer, however, to press the tonsil from without with the unoccupied hand in preference to having this done by an assistant, and there is no doubt that Mackenzie's is *the* instrument. Dr. Knight considers that there is decided advantage in having the patient anæsthetised for the operation, and advocates the use of ether, to such an extent only as "to keep the patient quiet and abolish conscious sensation;" and, no doubt, in some few cases this is advisable, but in the majority it is quite unnecessary; and it is a distinct advantage sometimes that the patient should be able to wash out the throat, &c., as in cases, not infrequent, in which there is at first some free hæmorrhage. Of course, as Dr. Knight points out, a thorough examination of the naso-pharynx with the finger can be made before removing the tonsils if general anæsthesia is induced. Dr. Knight rightly greatly prefers excision to any of the methods of removing hypertrophied tonsils, by snaring, cautery, &c., none of the methods give as satisfactory results, and by their use much unnecessary suffering and delay is caused.

Dr. Rufus P. Lincoln describes, in an exhaustive way, "The Pharynx and Larynx in the Exanthemata and other Febrile Affections." His remark that "the pharyngeal complications of typhoid appear to be much less frequent in this country (America) than in Germany" applies also to these islands, as, so far as we know, it seems to be a comparatively rare condition.

In his article on "Tuberculosis and Syphilis of the Larynx" Dr. J. Solis Cohen says, in reference to diagnosis, "My observations for many years have shown me that many cases of carcinoma of the larynx and the tongue, . . . originate upon a syphilitic basis." This is most true, and we have watched several cases in which, after repeated recurrences, the ulcerations of late syphilis have at last ceased to be influenced by those antisyphilitic remedies, at first effective, and finally assumed the characters of undoubted malignancy. We should, however, add that in our experience in this matter the pharynx has almost always been the seat of disease.

2. DR. DOWNIE'S *Clinical Manual for the Study of Diseases of the Throat* is a prepossessingly neat and well-printed little volume, written in a very clear and readable style, and stamped throughout with the practical tone which bears out the author's introductory statement that it was "dictated in great part by personal experience." "The work is divided into two sections. In the first, the systematic examination of the parts is discussed, and the various manifestations of disease, which may be met with in connection with the different structures, are described. In the second and larger section, individual diseases are considered in detail, according to their importance and the frequency of their occurrence; and the necessary medicinal and surgical treatment is discussed." The first section is not sub-divided; the second contains twelve chapters—the concluding one consisting of an excellent epitome of pharyngo-laryngeal therapeutics. Almost as a matter of course a coloured plate of the glottis, in three several positions of the vocal chords, forms the frontispiece. There are thirty-three woodcut illustrations interspersed throughout the text—the more important of which are original. They are all clearly produced and instructive.

We can confidently recommend the work to both students and practitioners. The descriptions of the various diseases are, in all cases, necessarily short; but there is little to complain of in the way of omission, as the language is always clear and succinct, and there are no words wasted. We cannot speak too highly of the practical tone of the author's discussions of treatment. We know of no better short guide-book to the very important subject with which it deals.

3. THE second issue of Dr. Ball's handbook "is larger than the first edition, owing to the fact that it includes the pharynx, whereas the first edition treated only of the nose and naso-

pharynx." The author has "endeavoured, in other respects, to adhere to the original plan of the work," and has "abstained, as far as possible, from adding to the length of the various sections." He has been "able to keep the book within a moderate compass, chiefly by avoiding theoretical discussions, and by excluding references to, or descriptions of, illustrative cases." He has "omitted some rare diseases, not met with in this country, such as rhinoscleroma," and has "treated rather briefly some less common diseases, which the practitioner is rarely called upon to deal with."

The volume is divided into three parts, of which the first deals with "General Considerations," and includes chapters on "Anatomy," "Physiology," "General Diagnosis," and "Methods of Treatment." The second part deals with "Diseases of the Nose, Naso-Pharynx, and Accessory Sinuses;" and the third is devoted to "Diseases of the Pharynx." There is a well-selected series of formulæ, "useful in the local treatment of diseases of the nose and pharynx," at the end; and a well-prepared (rather short) index.

Of the style and matter of the handbook before us we have nothing to say but praise. The descriptions of disease, &c., are necessarily short, but eminently clear and practical; nothing of genuine importance appears to be omitted, and the author has everywhere given us the fruit of his own maturely-formed judgment, based upon a long and varied practical experience. The portion of the book allotted to the nose includes a short notice of "cutaneous affections" of that organ. The opening sentence of the section which deals with one of the commonest of these—"Acne rosacea is a familiar and troublesome affection of the skin of the *external* nose"—is somewhat suggestive of Hibernian inspiration. But we will not try to indicate any small weaknesses in the style of a volume with which we are greatly pleased, and which we can cordially recommend to both student and practitioner.

4. Dr. Hall in his preface acquaints us that he "made free use of the *Centralblatt für Laryngologie und Rhinologie*, so ably edited by my friend Dr. Felix Semon."

As might be expected, after such an announcement, we are confronted with German theories and ideas from the beginning to the end of the volume. Some of them are valuable and some indifferent. Unfortunately the bias towards the German has caused the author to overlook some good work and valuable hints to be found in the work of his British confrères; thus, at page 116, we find Houdeville (1892) credited with the use of nitrate of silver to check epistaxis, though Higginbotham recommended it in 1826. Neither do we find any reference to Mr. Josiah Smyly's method of anterior plugging of the nares, though it is more easy of performance and more effectual than many of those mentioned. These are, however, trivial errors in an otherwise good hand-book.

The author makes no claim to originality, but he has collated information with much discrimination, and produced a readable and useful guide for students commencing the study of the nose and throat, and for country practitioners who are far removed from a throat specialist.

Not the least valuable part of the book is the appendix of formulæ, which include gargles, inhalations, mixtures, and so forth; the majority of which are of recognised efficacy in throat diseases.

Materia Medica, Pharmacology, and Therapeutics. Inorganic Substances. By CHARLES D. F. PHILLIPS, M.D., LL.D., F.R.S. (Edin.); late Lecturer on Materia Medica and Therapeutics at the Westminster Hospital Medical School; late Examiner in the University of Edinburgh, &c., &c. Second Edition. London: J. & A. Churchill. 1894. 8vo. Pp. 898.

THE present volume is based upon the plan of the former edition—published under the same title some twelve years ago—which has now been for some years out of print. It contains "many emendations and additions called for by the lapse of time and the progress of knowledge—notably in such subjects as oxygen, nitrogen monoxide, and hydrogen sulphide, iodoform and allied compounds, mineral waters, chromic, hydrobromic, and lactic acids, and the physiological action of arsenic, iron, lead, &c." The author has—very wisely, we think—not attempted a natural classification: "however interesting be the relation between chemical constitution and physiological action, it is not clear enough for practical purposes. Alphabetical order has been the main principle followed, but in different divisions—the gases and non-metallic elements first, then the halogens (iodine first), then water in its various modes of use, and afterwards the acids before the metals; of these last, the order is that of their Latin names, though the heading of the pages is in English." Such is the author's account of the construction of what we expect, from the present instalment, to prove in its completed form, the most valuable text-book on this important subject—or range of subjects—which we have hitherto seen issued in the English language.

The book has been prepared, as the author tells us in his preface, "under the constant pressure of active practice," and he offers this explanation as an "apology for the defects that may be found." We appreciate the writer's modesty, and can at the same time confidently assure him that we consider the apology entirely unnecessary. The experience of active practice has furnished the author with the otherwise unattainable practical knowledge which is displayed everywhere throughout the volume; and the amount of reading which he must have kept up at the same time in order to collect all the collateral information here furnished is the best evidence of his industry and enthusiasm in the study of the healing art. We cannot offer a better specimen of the author's discrimination in collecting and sifting his materials than that furnished by the section given to the consideration of the *Absorption and Elimination of Iron* (pp. 608–615), which seems to us to be the most instructive article we have hitherto read on these much-debated subjects. But we do not purpose to enter into a uselessly detailed examination of this comprehensive volume. We unhesitatingly recommend it to all students of medicine—both qualified and unqualified—as one of the safest guide-books which has hitherto been prepared on the subjects to which it is devoted.

Science Progress: a Monthly Review of Current Scientific Investigation. Conducted by Henry C. Burdett. Edited by S. Bretland Farmer, M.A. Vol. I. No. 1. March, 1894. London: The Scientific Press, Limited.

This new periodical has made, in its initial number, a very fair bid for success. The object aimed at by the editorial committee is a high and useful one, which has all our sympathy. "Science Progress will contain notices and reviews of the effective work that is being accomplished in the various branches of science. These reviews will in each case be written by persons specially qualified to deal with the subjects which they undertake. The articles will not merely form a group of abstracts of individual memoirs, but each will aim at providing a critical exposition of the current work in that department to which it especially refers. . . . In no case will the articles be of a 'popular' character, although it is intended that they shall be intelligible to persons possessing an ordinary scientific training."

This first issue includes seven articles:—"Physical Science and its Connections," "On the New Theory of Solutions," "On Insular Floras," "Fossil Plants," "On the Origin and Nature of certain Bacterial Poisons," "On the Present Outlook of Vertebrate Morphology," "On Chemical Physiology." The first of these is, we are glad to observe, from the pen of an eminent Irish scientist, Professor G. F. Fitzgerald, of the University of Dublin. This distinguished physicist takes a wide-minded view of the correlation of the various sciences. "Biology cannot advance without chemistry, geology leans on physics, and this interdependence is due to specialisation, to differentiation. In organisms and states intercommunication is essential to preserve this corporate life. Without nerves and blood-vessels an amœba may possibly get on fairly well. Fuegans do not require railways or telephones. Science requires its blood-vessels and nerves, its railways and telephones. Each member requires what is elaborated by others to be collected and sorted and distributed for its use."

The New Theory of Solutions is ably treated in the second article by J. W. Rodger, A.R.C.S. He gives an introductory account of the facts which led to its foundation by Van't Hoff. Pfeiffer showed, by carefully conducted experiments, that the magnitude of the osmotic pressure of a sugar solution was almost identical with that of a gas. "This identity of the values for the osmotic and gaseous pressures, the theoretical and practical support that they obeyed the same laws, led Van't Hoff to the conclusion that both are essentially of the same nature, that both have the same origin." According to this theory, the osmotic pressure of a solution is the result of the impacts of the molecules of the dissolved substance on the semi-permeable membrane, because when equilibrium results between solvent and solution the impacts of the molecules of the solvent are equal and opposed, and may, therefore, be neglected."

Medical readers will turn with the greatest interest to the concluding article—that on Chemical Physiology, by W. D. Halliburton, M.D., F.R.S., Professor of Physiology at King's Collège, London. This gives an excellent summary of the results of recent researches in this department of science, of which the writer is so acknowledged a master.

We have derived both pleasure and profit from the perusal of the pages of this new journal. We heartily recommend it to our readers, and wish it all the success it deserves.

Sciatic Neuritis: its Pathology and Treatment. By ROBERT SIMPSON, L.R.C.P., L.R.C.S. Bristol: John Wright. 1893. Pp. 46.

IN the first part of his monograph (or possibly, rather, compilation) on Sciatica Mr. Simpson endeavours, to a considerable extent, by means of quotations from the works of Gowers and Landois and Stirling, to explain the pathology and morbid anatomy of the disease. In the second part he calls in Dr. Stritch Dowse to explain the virtues of massage as a mode of treatment.

On the whole we prefer to consult these authors in the original.

Infectious Diseases Notification and Prevention. By LOUIS C. PARKES, M.D. Lond., D.P.H.; Lecturer on Public Health at St. George's Hospital; Medical Officer of Health for Chelsea. London: H. K. Lewis. 1894. Fcap. 8vo.

THIS little booklet (of 185 pages of text) has been prepared "with the object of placing in the hands of the profession a small compact volume containing all the enactments in force in England and Wales dealing with infectious diseases. Explanatory notes have been introduced, and the sections have been re-arranged in an order which appeared to the author to be a little more consequential than that pursued in the Acts themselves, which are somewhat chaotic in their arrangement, as the result of the amendments they were subjected to during their passage through the Houses of Parliament, or of original defective drafting." There is also included "a summarised account of the incubation, quarantine, and infective periods, and possible sources of infection of the common infectious diseases, together with some hints as to the practical working of isolation at home and of disinfection, and as to the methods to be pursued in dealing with infectious outbreaks in schools." The author has also given a Table of the usual diagnostic signs characteristic of the specific eruptive fevers. For the latter a modest apology is given, as "Extensive departures from the dates and symptoms set out in the Table will, of course, be found in great numbers of cases." This we would have considered quite unnecessary, as every intelligent reader will at once see that, as the author tells us in the preface, "it was only intended to include in the Table the average dates and the more usual symptoms."

We congratulate Dr. Parkes on the efficient way in which he has dealt with his subject, and cordially recommend his work to every medical officer of health. His arrangement—re-arrangement, as it is—of the sections of the Act has been most judiciously carried out, and his comments are always clear and succinct. The sections which deal with "Infectious Outbreaks in Schools," "Isolation at Home," "Disinfection," and "The Relation of the Medical Officer of Health to the Medical Practitioners of his District," are full of valuable information and advice.

An International System of Electro-Therapeutics: for Students, General Practitioners, and Specialists. By HORATIO R. BIGELOW, M.D., Permanent Member of the American Medical Association; Fellow of the British Gynæcological Society; Fellow of the American Electro-Therapeutic Association; Member of the Philadelphia Obstetrical Society; Member of the Société Française d'Electro-Thérapie; Member of the Anthropological and Biological Societies of Washington, D.C.; Author of "Gynæcological Therapeutics," and "Familiar Tales of Electricity and Batteries;" and Thirty-eight Associate Editors. Thoroughly illustrated. Philadelphia: The F. A. Davis Company, Publishers. London: F. J. Rebman. 1894. Royal 8vo. Pp. 900.

THIS truly representative, and cosmopolitan, volume is well worthy of a high place among the well-selected series of text-books which the F. A. Davis Company have already offered to the medical profession. The type, paper, and binding are all faultless; the style is exquisitely clear and readable; and the matter treated by the various writers is, in every case, up to the latest date of clinical and scientific knowledge.

Besides the "Introduction"—which deals with the discussion of "The Necessity for Special Education in Electro-Therapeutics"—there are thirty-five distinct and independent articles by various authors, chiefly American, but including some of the highest European names. These deal respectively with: "Electro-

Physics;" "Animal Electricity;" "Static Electricity and Magnetism;" "Faradic or Induced Current; Electro-Magnetism; Electro-Massage, and Instruments;" "Galvanism;" "Electro-Physiology;" "Electro-Diagnosis;" "Cataphoresis, Anodal Diffusion, Electrical Osmosis, or Voltaic Narcotism;" "Intestinal Occlusion treated by Electricity;" "Diseases of the Alimentary Tract; Diseases of the Liver and Kidneys; Gout and Rheumatism;" "Electro-Therapeutics of Diseases of the Lungs and Heart;" "Diseases of the Uterus;" "The Electrical Treatment of Fibroid Tumours of the Uterus;" "Discussion of the Electro-Therapeutic Methods of Apostoli and others;" "The Treatment of Diseases of the Uterine Appendages by Electricity;" "Engorgement and Displacements of the Uterus;" "Disorders of Menstruation;" "Treatment of Diseases of the Female Urethra by Electricity;" "Ectopic Gestation;" "The Treatment of Cancer of the Uterus by Electricity;" "Facial Blemishes" (appropriately consigned to the charge of an eminent lady physician, Dr. Henrietta P. Johnson); "Electricity in Diseases of the Skin;" "Diseases of the Nose, Naso-pharynx, Pharynx, and Larynx;" "Ophthalmology;" "Diseases of the Brain;" "Neurosis;" "Diseases of the Spinal Cord;" "On the Use of Electricity in the Treatment of Diseases of the Peripheral Nerves;" "Electro-Thermal Surgery;" "Treatment of Strictures by Electrolysis; Hypertrophy of the Prostate;" "Abscesses; Adenomas; Adipose Tumours; Aneurisms; Callosities; Hæmorrhoids; Torticollis; Specific and Malignant Diseases of the Rectum, and Ulcerations;" "Incontinence of Urine; Orchitis; Hydrocele; Spermatorrhœa; Gonorrhœa;" "The Use of Electricity in Obstetrics; Galactorrhœa; Sore Nipples;" "Electricity in Diseases of Childhood" (the work of another eminent lady doctor); and "Adhesions in the Acute and Chronic Inflammatory Disorders of the Female Pelvis." The work concludes with one of the best indexes which we can remember having seen anywhere. It occupies 21 pages, closely printed, and in too small a type—the only fault we can find with it.

The paging of the volume is not continuous, as in our English-made text-books, but is carried out in sections denoted by the letters of the alphabet (in the present case A—S), after the manner of the well-known "Annual of the Universal Medical Sciences."

Where such an enormous amount of material is offered for the criticism of the reviewer, it would be downright hypocritical pretension on the part of the latter to profess to give his reader a satisfactory account of each article in detail. In the present case, we will merely say that our opinion of the contents of the volume before us is one of unqualified approval. The various subjects are thoroughly and exhaustively dealt with, and the supervising care of the editors is denoted by the remarkably uniform standard of diction and scientific attainment displayed throughout. It is but faint praise to say that this is the best work that we have hitherto seen in the English—or, indeed, in any other—language on the application of the "coming science" to the requirements of medical and surgical therapeutics.

Lectures on Auto-Intoxication in Disease, or Self-Poisoning of the Individual. By CH. BOUCHARD, Professor of Pathology and Therapeutics, Member of the Academy of Medicine, and Physician to the Hospitals, Paris. Translated, with a Preface, by THOMAS OLIVER, M.A., M.D., F.R.C.P.; Prof. of Pathology, University of Durham; Physician to the Royal Infirmary, Newcastle-upon-Tyne; and Examiner in Physiology, Conjoint Board of England. Philadelphia: The F. A. Davis Company. London: F. J. Rebman. 1894. Royal 8vo. Pp. 302.

BOTH translator and publishers deserve our best thanks for the way in which they have prepared this issue of Professor Bouchard's valuable "Lectures on Auto-Intoxication in Disease" for the use of English readers. Dr. Oliver tells us that he has "tried, as far as possible, to give a literal and a readable translation," and we can afford to congratulate him cordially on the success which he has attained. The volume, like its predecessors in the catalogue of the same enterprising publishers, is well printed on good paper, and dressed in a handsome binding.

These lectures may be regarded as "an inquiry into the operation of poisons introduced from without or fermented within the body of man, and the part they play in health and disease." "Putrefactive processes in the intestinal canal and the development of physiological and pathological alkaloids play an important part in many diseased processes until lately unknown or misunderstood." Thirty-two lectures—of which the last is a "General Recapitulation"—are given to the consideration of the multitudinous aspects and relationships of auto-intoxication. A very excellent index has been added.

In the first lecture we find a very clear, and, as we believe, unusually accurate statement of the relationship between infectious disease and the ubiquitous microbe:—

> "What renders possible the development of an infective disease is not the chance meeting of man and microbes. This meeting is constant, but it is generally without result. Microbes—even the most dangerous—assail us. They are spread around us with the same prodigality that nature distributes developing matter, and yet growth is uncommon. . . . The healthy man is not attractive to the microbe. Almost constantly invaded by infectious agents, he reacts against them, and in this contest keeps generally uppermost to such a point that often the disease does not even become apparent. It is not thus with him when his vitality is weakened; then his means of defence diminishes. . . . It is, therefore, a modification antecedent to nutrition which renders infection possible. . . . If the anatomy of these hurtful agents is scarcely known, their physiology is still less known. We have imagined that they act in five different ways."
>
> (1) "Mechanical . . . might cause obstruction in the vessels, more particularly those of the lung and kidney. (2) Traumatic . . . Erode and perforate cells. (3) Anatomical lesions . . . Œdema, hæmorrhage, suppuration, emphysema, and gangrene. (4) That the microbe, in order to nourish itself, consumes what is useful, the subtraction of which is prejudicial to the organisms. . . . This ingenious hypothesis has not even received the beginning of demonstration. (5) Can elaborate substances that are toxic. There, at least, and there only, do we find a beginning of the proof."

In the closing sentences of his first lecture Professor Bouchard goes on to say:—

> "It is not only in infectious diseases that we have to reckon with the intoxication produced by them, it is also in the normal state. Indeed, man, in the condition of physiological life, is inhabited, for a considerable length of his digestive tube, by inferior vegetables. . . . Intestinal fermentation increasing abnormally, the heap of toxic matter may become such that its absorption produces intoxication in spite of the integrity of the renal emunctory. . . . Thus, in the normal as in the pathological state, the organism is a receptacle and a laboratory of poisons. The object of the lectures which follow will be to find out what part is played by self-intoxication in the production of disease and morbid accidents."

In the subsequent lectures the author deals at length with the various aspects of the study of the production and elimination of poisons by the living organism, and in special detail with the "Auto-Intoxications" of uræmia, of gastric and intestinal disorders, of typhoid fever, of cholæmia, of diabetes, of cholera, &c. The thirty-first lecture is devoted to an examination of "The General Therapeutics of Self-Poisoning."

There is a vast wealth of original thought, as well as of acquired information, contained in the pages of this volume. Every question is considered from the high stand-point of an accomplished scientist and a truly philosophic observer. We trust that it will be read by all inquiring members of the medical profession. It will form an improving sequel to the perusal of any of the usual text-books on bacteriological pathology.

Trephining in its Ancient and Modern Aspect. By JOHN FLETCHER HORNE, M.D., D.Sc. (Hon.), F.R.C.S. Ed.; Honorary Surgeon to the Barnsley Beckett Hospital, and late Assistant Resident Surgeon, Leeds General Infirmary. London: John Bale & Sons. 1894.

IN this clearly printed and neatly bound booklet of 133 pages, Dr. Horne brings before the reader a vast deal of well-written, and fairly well-digested, information on the very important surgical procedure of trephining. He has collected his knowledge from sources both near and far. He has evidently been very enthusiastic in the accomplishment of his self-imposed task. He heads his title-page with a quotation, "The more excellent way;" and gives as the motto of his work, "The harvest gathered in the fields of the Past, is to be brought home, for the use of the Present."—Dr. ARNOLD.

In the first chapter, which occupies 69 pages of the volume, the author gives a very interesting *résumé* of "The Early Literature of the Trephine, with its Modern Appliances to Injuries and Diseases of the Head and Spinal Cord." The other chapters are devoted to consideration of cases suited for the operation of trephining, and remarks on diagnosis, contradictory opinions, and collateral sources of information bearing upon the great variety of cases which may require the surgeon's interference.

The importance of the subject treated by the author will be admitted by all readers. No one, we opine, will be found to dissent from the observation which opens the introduction :—"I think it will be admitted that at no period in the history of brain surgery has progress been more rapid than during the last two decades." He gracefully introduces the modest plea for the value of his own work:—"It is one of the functions of the literary worker to rescue valuable matter from oblivion, and to render it more accessible, and, without any claim to literary merit, my hope may be that what has been to me a pleasure in its preparation, this *brochure* may be found not without its use." We entirely concur with him in the opinion expressed in his reference to the writings of the physicians and surgeons of bygone ages:—"Many books lie on the shelves, and much that is interesting remains unknown, from the widespread belief that our professional ancestors wrote nothing worth reading now. A little study of medical writers corrects that notion, and every one who takes the trouble to read the works of the best men of the past time will find much food for reflection in the observations, their arguments and their errors."

The first chapter is copiously illustrated with woodcut figures of the various forms of instruments used by our surgical predecessors in their operations on the cranial wall. Their presence adds greatly to the amount of instruction and interest derived from the perusal of the text. In the chapters which deal with the various classes of cases for the treatment of which the use of the trephine is brought into requisition, many cases of the greatest interest from the best authorities—old and new—who have enlightened the world by the publication of the results of their practice. Collective statistics are also given; and, indeed, the author appears to have spared no trouble in placing before his reader a well-arranged abstract of the best available information on our present knowledge of the subject. We wish his little volume may receive the attention which it deserves from all surgical practitioners.

Anesthésie Physiologique et ses Applications. Par le Dr. Raphaël Dubois, Professeur de Physiologie Générale et Comparée à l'Université de Lyon. Paris: Georges Carré, Éditeur. 1894. 8vo. Pp. 198.

In this small volume the author has given an excellent *résumé* of the present state of our knowledge of the history of Anæsthetics, their physiological action, and the best methods of administration; also the special advantages, disadvantages, and dangers accompanying the use of each. In the brief historic sketch which forms the first chapter, the author indicates the very early employment of some forms of anæsthesia. The ancient Assyrians compressed the necks of their male infants with a ligature before proceeding to the operation of circumcision. In the time of Aristotle it was known to physicians that compression of the vessels of the neck produced loss of sensation and motion, without going to the length of asphyxia. In the time of Hippocrates narcotics were employed to prevent the pain of surgical operations. In a Chinese volume of the third century we are informed that the Celestials of that date used a preparation of Indian hemp to neutralise the pain of amputation, of acupuncture, and of the application of moxas. Anæsthesia by inhalation was employed in Europe in the fifteenth century, by soaking sponges in narcotic juices, and afterwards in warm water, and getting the patient to inhale the vapours. (Resuscitation was afterwards effected by a corresponding use of other sponges soaked in vinegar.) In more recent times alcoholic intoxication was utilised for the same purpose, and the great French surgeon, Malgaigne, distinguished himself by having recourse to this proceeding. Hypnotic anæsthesia was employed for the first time by Jules Cloquet, in 1829.

The history of the introduction of local anæsthetics is sketched in a similarly interesting form.

In the third chapter, the author gives an extremely clear account of the physiological mechanism of the general anæsthetics; in the fourth chapter, of their various modes of activity, which are elucidated and contrasted in the crystalline clearness of style and diction which so well characterise the writings of—so far as we know—nearly every French scientist who is a master of his subject. In the succeeding chapters, the accidents and dangers which accompany the administration of anæsthetics are discussed. The relative advantages and disadvantages of the anæsthetic agents are clearly and succinctly placed before the reader. With regard to the debated question of the choice of *chloroform* or *ether*, Dr. Dubois thinks that no more exact idea can be conveyed than that long ago enunciated by Flourens:—"Si l'éther est un agent merveilleux et terrible, le chloroform est plus merveilleux et plus terrible encore." He, however, by no means gives an absolute preference to ether, and furnishes a list of fourteen substantial inconveniences which accompany and follow its administration. He also shows how contradictory are the pronouncements of statisticians on the subject of the comparative mortality caused by their use. Some instructive woodcut figures are included in the text, illustrative of the more important apparatus and the best modes of producing anæsthesia. The subject of local anæsthesia is also well treated. Special chapters are devoted to the sections of obstetrical, ocular, dental, veterinary, and experimental anæsthesia. A "bibliography"—much too short—is appended. We cordially recommend the work to all students of the subject.

A Guide to the Public Medical Services: Containing information of Appointments in the Home, Naval, Army, West Coast of Africa, Indian, and Colonial Medical Services. Compiled from official sources by Alexander S. Faulkner, Surgeon-Major, Indian Medical Service. London: H. K. Lewis. 1893. Demy 8vo. Pp. 72.

This pamphlet fills a distinct want, and gives most important and full information to the numerous class of newly-qualified medical practitioners who are thinking of the desirability of choosing one of the public services as a life career. The author has taken great pains in collecting and selecting his material, and has arranged it most clearly and satisfactorily. We cordially recommend this little work to the notice of every medical student and newly-fledged doctor who has been feeling any anxiety as to the advisableness of offering himself as a candidate for any of the "services." He will here find all the important facts connected with the competition for the entrance, and the remuneration for his after work.

Chirurgie des Voies Urinaires—Études Cliniques. Par le Dr. E. Loumeau, Professeur libre de Clinique des Maladies des Voies Urinaires; Professeur d'Anatomie à l'École des Beaux-Arts; Ancien Chef de Clinique Chirurgicale à la Faculté de Médecine; Sécrétaire de la Société de Médecine et de Chirurgie. 2^{e} Edition. Revue, augmentée et accompagnée de cinq planches hors texte noires et chromolithographiées. Bordeaux: Feret et Fils, Libraires-Éditeurs. 1894. 8vo. Pp. 300.

This very interesting work is a broad expansion of a former issue of a *brochure* of 70 pages. The author gives a well-selected series of instructive cases illustrative of the clinical history, pathology, and surgical treatment of the more important affections of the kidney, ureter, and bladder. "Écrites au chevet du patient, ces pages en retraçant avec fidélité l'histoire, presque toujours suivie des réflexions critiques et des enseignements sufférés par chaque fait particulier." "Reproduire clairement la vérité clinique, en tirer pour plus tard une leçon profitable à la fois au chirurgien et au malade; tel est le but que je me suis propose." These are some of Dr. Loumeau's remarks in introducing the reader to the interior of his work. We congratulate him on the manner in which he has carried out the arrangement and style of a volume from which we have derived much instruction. The cases which the author has here collected are always interesting, and his comments thereon highly instructive. The first of the series is one in which a perinephritic abscess of the left side opened into the bronchial tubes of the corresponding lung. The patient recovered. The second gives the curious details of the case of a boy who had suffered much at the hands of his mother on account of an unpleasant physical weakness, in the form of nocturnal incontinence of urine. At last the ingenious idea occurred to this youngster that he would secure the unreliable passage for the night by tying a piece of string firmly around the penis; the experiment, *quoad* the incontinence, was a success, but the string was imbedded in an œdematous swelling next day, and he could not, of course, remove it. On the third day the torturing ligature was removed by the local medical practitioner. The operation was instantly followed by the escape of two jets of urine—one from the meatus urinarius, the other from an artificial orifice which the pressure of the string had made in the lower wall of the urethra. The case was of old standing when seen by Dr. Loumeau. He excised the cicatricial tissue from the margin of the fistula, and then dissected and pared the edges of the wound for a sufficient distance to make their approximation easy. The result was not, however, completely satisfactory, as the patient proved refractory and withdrew the sound which had been left in the urethra after the operation.

Six cases are reported in which "cystitis blennorrhagiques" were treated by "instillations" of solutions of corrosive sublimate—usually, 1 in 4,000. Four of these cases were chronic, two acute. The cure, in every instance, was rapid and complete. The author has the fullest confidence in the efficacy of this remedy. "S'il a l'inconvénient de provoquer, en solution un peu concentrée, des douleurs très vives, le sublimé présente, en revanche, deux notables avantages; il est plus actif et aussi moins salissant que le nitrate d'argent, dont les traces noires causent tant d'ennuis en chirurgie urinaire." An interesting case of cicatricial stricture of the urethra in the female was successfully treated by incising both upper and lower wall of the canal with a bistoury, and afterwards excising the cicatricial tissue. The contraction had followed the cauterisation of a polypus.

Interesting cases are also detailed of foreign bodies in the bladder and urethra—male and female—calculi (vesical and urethral), prostatic enlargement, &c., &c. We have found this volume both instructive and interesting, and can recommend the perusal of its pages to all surgical practitioners.

Leçons de Therapeutique. Par GEORGES HAYEM, Professeur de Clinique Médicale à la Faculté de Médecine de Paris; Médecin de l'Hopital Saint Antoine; Membre de l'Académie de Médecine. Les Agents Physiques et Naturels. Agents Thermiques—Électricité. Modifications de la Pression Atmosphérique. Climats et Eaux Minérales. Avec 130 figures et 1 carte des Eaux Minérales et Stations Climatériques. Paris: G. Masson, Éditeur. Grand 8vo. Pp. 692. 1894.

THIS is a supplementary volume—completing the series of *Leçons de Therapeutique,* of which four volumes had been previously published by the author. The finished set now "comprennent l'ensemble des *Médications.*" Like its predecessors, this book is beautifully printed and illustrated with excellent figures. An excellent "Carte des Eaux Minérales et des Stations Climatériques et de Bains de Mer de la France et de l'Europe Centrale" is placed at the end of the volume. It includes the lower segment of England—thus managing to indicate the position of Cardiff, Bristol, and Bath, as well as, of course, all the important watering places of the southern English coast. The Italian peninsula is also included, as far as to a little south of Naples.

The text is in the form of a series of lectures—forty-five in number—originally delivered by the author, in his professorial course, during the Session 1892–3. Of these the first eight are devoted to the consideration of "Agents thermiques"; from the ninth to the twenty-seventh, inclusive, of "Électricité—Électrisation;" the twenty-eighth and twenty-ninth lectures are given to "Pression atmosphérique utilisée comme agent thérapeutique;" from the thirtieth to the thirty-fourth the author deals with the subject of "Climats;" and the remaining lectures are concerned with "Eaux Minérales."

In the lectures which deal with thermal agents the author gives an excellent account of the physiological influence of heat and cold, both in health and disease; the production, distribution, and dissipation of the heat of the body, both in health and disease, are fully discussed—and in a style of fascinating clearness. Valuable illustrations of the most useful and convenient apparatus for baths, douching, &c., are included in the text. In the portion of the volume which is devoted to electricity and its application, the author gives an excellent description of the best instruments, the physical theory of their actions, and the appropriate methods of utilisation. A very good account of the present state of our knowledge of electricity is furnished, and the simpler mathematical formulas are given under the various headings. An extremely suggestive section of the book is contained in the lectures which deal with the physiological and therapeutic influence of *atmospheric pressure.* We would specially commend those pages to the notice of the reader, as we do not recollect having seen this important subject so well discussed elsewhere. The lectures which deal with the more trite subjects of *climates* and *mineral waters* contain information more like what we are accustomed to meet in the ordinary books on health resorts. The Irish reader must derive a certain amount of amusement from the perusal of the single paragraph (on page 481) which deals with the watering-places of the Emerald Isle:—"En Irlande, nous trouvons *Glengariff, Queenstown, Rostrevor.* A Glengariff le climat est égal et doux on y jouit d'un beau paysage. Queenstown, dans l'île de Cover, est un endroit analogue, plus gai." The geography and orthography included in the last sentence are both rather suggestive of Hibernian inspiration.

The New Science Review: A Miscellany of Modern Thought and Discovery. July, 1894. Volume I. Number 1. New York: The Transatlantic Publishing Company. 8vo. Pp. 128.

THE editorial announcement of this new aspirant for public favour among scientific periodicals claims for it a distinct individuality, on the ground that, while yielding to none of the older and more conservative publications in the scientific value of its material, it strives to present it in a popular style. It explains before it demonstrates. Thus it occupies a position midway between the ponderous scientific journals and the lighter magazines. This claim is fairly vindicated in the number of the *New Science Review* which now lies before us.

The Review opens with a paper by Major-General A. W. Drayson, F.R.A.S., on the Mystery of the Ice Age and its solution. On tracing out the curve which the Pole of the Heavens actually traversed, General Drayson found that it had, during the past 1,800 years, moved round the arc of a circle, the radius of which was 29° 25′ 47″. No other curve or radius would explain the facts. The centre of this circle was 6° from the Pole of the Ecliptic, and the completion of this circle would occupy about 31,600 years. During this period of 31,600 years there must have been a variation of 12° in the extent of the Arctic circles and tropics, because during the tracing of this circle the two Poles must vary their distance 12°, the centre of the circle traced by the Pole being 6° from the Pole of the Ecliptic. The dates at which the various changes occurred were easily ascertained. About 3,000 years ago the Arctic circles extended about 2° more than at present. About 7,000 years ago they extended about 6° more than at present. About 13,500 B.C. the Arctic circles reached to about 54° latitude, with the result that vast accumulations of snow and ice took place at the earth's poles during each succeeding winter, the summer sun at length failing to melt the winter's snow and ice, and so the Glacial Epoch, or the "Ice Age," as it is now called, was brought about. The General, in fine, maintains that there is a second rotation of the earth, which causes the two half-axes of the earth to describe cones during about 31,600 years.

The "Problem of the Pole" is the title of a fascinating article by Charles Morris, of the Academy of Natural Sciences of Philadelphia. In this paper an account is given of the various expeditions which are at present engaged in the well-nigh hopeless task of solving the Problem of the Pole. Of all these expeditions the most remarkable, perhaps, if not the most foolhardy, is that undertaken by Fridtjof Nansen. This intrepid Arctic voyageur proposes to drift across the region of the Pole, in a vessel called the *Fram* (or *Forward*). This vessel has been constructed with such a slope to the lines of its hull that it will *probably* be lifted by two colliding ice-fields and carried safely on their surface. His enterprise is based on certain interesting evidences that a current sets across the polar area from North Siberia to West Greenland, by the aid of which he hopes to be drifted through these unknown seas, and possibly over the locality of the Pole itself. The *Fram* has been provisioned for five years, provided with boats in case the vessel should be crushed, and with a crew of thirteen men. He sailed from Christiania at midnight of June 24, 1893, and the last news of the *Fram* was of the date of August 6, 1893, when some Samoyeds saw her passing, between ice and land, along the Yarmal coast.

"A Newton of the Mind" and "Scientific Creation" are papers which describe the extraordinary, even fanatical, researches of John Ernst Worrell Keely, the Philadelphia experimentalist. In the former article, Keely's "system of sympathetic-vibratory physics" is sympathetically described by Mrs. Bloomfield Moore, and in the second, Mr. Julian Hawthorne bespeaks a hearing for Keely—apologetically, no doubt—in language which must command attention from its dignity, nay, its solemnity. "It may now be affirmed," the author writes, "that vibration lies at the base of all material phenomena. The universal ether is the real protoplasm; from its vibrations result the various substances which constitute the realm of physical nature. Hence we speak of the 'Law of Vibration.' Broadly speaking, the man who can control at will the diverse orders of vibration can mould the universe at his pleasure."

These articles strike us as being a weird mixture of the sublime and the ridiculous.

Led away, perhaps, by the attractiveness of the papers to which allusion has been made, we must not, however, omit to direct attention to the only article in the number which is strictly cognate to medicine. It is from the pen of Charles M'Ilvaine, who discusses the rights and wrongs of toad-stools in a manner which must both interest and instruct the physician. We will conclude this notice of the *New Science Review* by quoting two paragraphs from Mr. M'Ilvaine's admirable paper:—

> "The physician called in to administer to a patient supposed to be poisoned by toad-stools is enabled to draw a sharp line as to what poison is at work by the time elapsing between the eating and the appearance of sickness. The poison of the amanita shows no effect whatever under eight hours. The first symptom is shown in an ashy pallor and peculiar greyness of the eye. This is immediately followed by what resembles a violent attack of cholera-morbus, together with a foul breath, which must be guarded against by ventilation of the room, or poisoning to all pre-

sent will result. Gastro-intestinal troubles follow, insufferable tenesmus, coma, death, in from forty-five to sixty-five hours after the ingestion of the meal, unless the specific remedy is heroically administered. Emetics and stimulants are useless—worse than useless—at the outset of the attack.

"Upon the first showing of a single symptom of amanitine poisoning, as described, one-sixtieth of a grain of sulphate of atropine should be subcutaneously administered; and the same dose should be given at short intervals until the one-twentieth of a grain has been absorbed or the effects of the poison have been counteracted. Heroic action is absolutely necessary."

The foregoing analysis of the contents of this first number of the *New Science Review* will convey some idea of the freshness and freedom of thought which are embodied in its pages.

The Pharmacopœia of the Hospital for Diseases of the Throat (Golden-square). Edited by F. G. HARVEY, F.R.C.S. Ed.; Surgeon to the Hospital. Fifth Edition. London: J. & A. Churchill. 1894. Cr. 8vo. Pp. 112.

THE present and fifth edition of this useful compilation of prescriptions is based on its predecessors, which were edited by the late Sir Morell Mackenzie. Many of the formulæ even now in daily use were introduced by that distinguished specialist.

Mr. Harvey, who has done the work of revision and addition wisely and well, points out in his preface that the recent introduction of several new drugs of proved efficacy has rendered it necessary to add many fresh formulæ—for example, pilocarpin has been included among the hypodermic injections, eucalyptus among the vapours. On the other hand, there are several omissions of formulæ which were contained in previous editions. Recent advances in the surgery of the thyroid gland have rendered the "caustic darts" obsolete, and they are accordingly omitted. Some of the nasal bougies and some of the powders are also discarded. A notable alteration is the omission of the index, its place being taken by the adoption of an alphabetical arrangement in the text. The diet-table of former editions has been replaced by that of the London Hospital.

An instructive feature in this excellent pharmacopœia is the insertion of carefully drawn-up directions for use under the various headings—buginaria, gargarismata, guttæ, insufflationes, lotiones, nebulæ, pastilli, trochisci, inhalationes, fumi, vapores.

The book is beautifully printed by Messrs. Ballantyne, Hanson, & Co., of London and Edinburgh.

The Mother's Help and Guide to the Domestic Management of her Children. By P. MURRAY BRAIDWOOD, M.D., F.R.C.S., formerly Senior Medical Officer to the Wirral Hospital for Sick Children. London: The Scientific Press, Limited. 1894.

WE look with suspicion on all domestic medicine books. Their publication is a sailing close to the wind. We do not like it. The proper place for a mother to seek advice is the consulting room of the family doctor. Domestic medicines do no good to any person except the author and the publisher.

This book is of the objectionable class referred to, and its preface starting with a text is a goody-goody sermon. Science and religious platitudes are, when mixed, unpalatable. Coming to the information intended for rule and goverance of the nursery and the children, we find good plain rules for sanitation, feeding, clothing, and exercises of the little ones. If a mother is to get information of a useful character from a "Mother's Help" book, we think Dr. Braidwood's is the most likely to furnish it; no exception can be taken to the method of instruction or the advice given, and we hope a future edition will be free of the religious platitudes that disfigures the present preface.

Transactions of the American Orthopædic Association. Seventh Session, held at St. Louis, Mo., Sept. 19, 20, and 21, 1893. Vol. VI. Philadelphia: Printed for the Association. 1894.

THIS volume contains thirty-six articles on the specialty for the promotion of which the Association exists. On looking over the papers we find a very considerable latitude given to members in the selection of their subject, thus—Dr. Judson writes on "White Swelling," Dr. Blanchard on "Fragilitas Ossium," Dr. Davis on "The Treatment of Abscesses."

Now, we should like to know where the poor general surgeon comes in? Every specialist flitches a feather or two from his wing, and soon he will be unable to get on at all. This is, however, a digression, and we should feel called upon to apologise if we had not Swift's commendation of an occasional digression.

The papers which are more immediately bearing on orthopædics contain many useful hints on the use of splints and the general treatment of deformities, and are a valuable contribution to surgery.

We notice with pleasure that English surgical classics are honourably referred to in many of the papers, notably in Dr. Griffith's article, "Tumor Albus of the Knee." Such references tell of an appreciative reader, and of one whose treasury of knowledge is stored with things new and old.

The Physician's Wife and the Things that pertain to her Life. By ELLEN M. FIREBAUGH. Illustrated with Forty-four Photo-Engravings of Sketches from Life. Philadelphia: The F. A. Davis Company. 1894. 12mo. Pp. 186.

THE hackneyed excuse for rushing into print—"advice of friends"—is not often so fairly justified by results as in this case. The "Æsculapian Society of the Wabash Valley," with whose proceedings we are, no doubt, familiar, invited Mrs. Firebaugh to read a paper on "The Physician's Wife," at its semi-annual October meeting. The paper pleased, and was published in pamphlet form for distribution to the 125 members resident in Indiana and Illinois. It was then suggested that the paper should be expanded and glorified into a book—and the result is before us. It is a brightly-written description of the struggles, the pleasures, and the woes of the American country practitioner, and of his homely patients—enlivened by humour, saddened by the pathos which is humour's twin sister, and weighted with shrewdness and common sense. It is very unlike the work mentioned in the prefatory address to the reader—a ponderous theological treatise which a young lady's host insisted on her taking home to read, and which was duly returned with these lines upon the flyleaf:—

> "If there should be another flood,
> For refuge hither fly;
> Though all the world should be submerged,
> This book would still be dry."[*]

The illustrations add to the vividness of Mrs. Firebaugh's description. A fair sample will be found on page 25—a portrait of the matron who addressed the doctor thus, while his wife waited for him outside:—"I've seed doctors before I ever seed *you;* and I've done a heap of docterin' myself—I'll let you know that! I've buried three husbands and six children, an' I *doctered 'em all myself!*" There have been cases, we have heard, in the bad old times, in which the following gentle caution to the doctor's wife would not have been amiss. Now, of course, 'tis otherwise:—

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[*] We are reminded of an anecdote of the late Mr. Spurgeon. After a visit to a worthy pastor—"Ah!" he said, "he is the stuff of which martyrs are made!" "Indeed?" "Yes, he'd burn well—he's so very dry."

"The physician's wife should possess some tact and discretion, and her bump of curiosity should be not too largely developed. When the doctor comes home it is more than probable he will enjoy talking about something else than what has occupied his mind at the office. Then she should not greet him with a round of questions and cross-questions as to this or that patient, just what is the matter with him or her, &c., &c. In the first place, there are many things she has no right to know. Patients are often very sensitive; they take the doctor into their confidence because they must, not because they would choose to do so if it could be avoided. That confidence should not be betrayed, even to his wife. In the next place, she should not want to know. It will often be a relief to her to say, if she is questioned—and to say honestly and without evasion—'I do not know.' By this I do not mean that the physician should never mention his patients to his wife; but it might not be amiss for him, in some cases, to carry in his memory the words of Hotspur to Lady Percy, his wife, when she begged him to reveal to her an important secret:—

'Thou wilt not utter what thou dost not know,
And so far will I trust thee, gentle Kate.'"

Mrs. Firebaugh's generalisations are sometimes crude. "All men," she tells us, "are absent-minded and forgetful; but I believe physicians are particularly so, thereby causing a world of inconvenience to their wives." She should be on her guard against the temptation to argue *à particulari ad universale.* We prefer her anecdotes to her logic, and we cannot forbear giving a specimen. A doctor meeting in the street a lady in reduced circumstances, whom he had attended gratuitously for years, but whom he had not seen for some months, said, "Why, Mrs. —, what has become of you all this time?" "Well, the fact is," she replied in all simplicity, "I didn't seem to gain very much, and I thought I'd consult a pay doctor!"

We shall conclude our brief notice with a sample of the author's graver manner. She tells how a country doctor, disgusted with unremunerated labour and ingratitude, resolved that, in justice to his wife and children, he will no longer work for nothing. He is asked to go seven or eight miles to see a woman dangerously ill, whose husband stands at the door. Strong in his new resolution, he refuses, "No, sir," he sternly says, "I have gone down to your house often enough without getting anything for it." "I know it, Doctor, and I am ashamed of it: but it ain't *her* fault. She's always done her part." The husband pleads: the doctor is inexorable. After a sleepless night, remorseful, he starts at early dawn to see the patient—and finds her dead.

> "It is not hard to see that, in the presence of things like this, the physician's resolutions to work only for himself and his family must vanish away, and that, in the future as in the past, much of his work, his time, and his strength must be given where they will bring him little or nothing in return. And, therefore, the physician's wife, pondering these things in her heart—thinking of the countless deeds of kindness and mercy he has been doing through all these years in the name of charity, sweet charity—thinks within herself that if, in a better world than this, there is a crown a little more radiant than all the rest, surely it must be waiting for the physician's brow."

The title page of this pleasant little book bears the name, F. J. Rebman, of London—to whom we recommend recourse.

The Nurse's Dictionary of Medical Terms and Nursing Treatment. Compiled for the use of nurses by HONNOR MORTON. London: The Scientific Press, Limited. Pp. 139.

THIS is a small, neatly-printed pocket volume, but in the attempt to compress a great deal into a small space the information given is often not only scanty but misleading. The following examples, taken at haphazard, will illustrate the loose way in which the book is compiled:—

"*Costive:* Constipation.

"*Creolin:* A drug nearly related to carbolic acid; used in labour to arrest bleeding.

"*Pupil:* The iris or centre of the eye.

"*Malingering:* Shamming sickness; a common practice with lazy soldiers.

"*Teeth:* The two middle teeth of the lower jaw, should appear about the seventh month. During teething a child is fractious and liable to convulsions.

"*Vom. Urg.:* When the vomiting begins.

"*Ethyl:* An anæsthetic of which not much is known."

The spelling needs a good deal of attention, as these examples will show—Sole*ns*, Ur*i*a, E*n*onym*us*.

The number of words given is very large, and calculated to bewilder a nurse. An examination paper containing such examples as the following would try the nerves of advanced medical students—Tocology, Lienculus, Isthmitis, Exangia, Blennisthemia, Balbuties.

The Middlesex Hospital—Reports of the Medical, Surgical, and Pathological Registrars for the Year 1892. London: H. K. Lewis. 1894. Pp. 378.

THE Registrars of the Middlesex Hospital are following the vicious example of the Army Medical Department, in issuing their Report for 1892 in the middle of 1894. Nor can they plead the excuse that their material has to be collected from the ends of the earth. What they give us, however, though late, is valuable; as the statistics of a great hospital receiving annually 3,000 in-patients cannot fail to be. The record of the institution's work is as complete as could be wished. Tables, notes of important cases, pathological reports, abound; and we are presented with a valuable book of reference full of isolated facts; but we look in vain for summary or generalisation—for conclusions as to ætiology or therapeutics, based on experience and experiment. Surely a great London hospital might give us something better than an undigested mass of facts, however elaborately classified and arranged?

QUININE POISONING.

THE N. Y. *Medical Record* (3rd Feb., 1894) publishes two cases of intolerance of quinine. In one—a healthy woman, aged twenty-six—a dose of two grains in pill produced, in twenty minutes, a tingling sensation gradually extending from the extremities over the whole body, with "sneezing, profuse lachrymation, coryza, roaring in the head, itching over the whole body, congestion of the conjunctiva, face swollen and flushed, and also swelling of the tongue and lips." In three hours an intensely red rash appeared. In 28 hours all the symptoms had gone, except slight roaring in the head. In the other case the dose was five grains. The symptoms were similar. In both cases an irregular menstrual flow occurred.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

The Medical History of Christopher Columbus, and the part taken by the Medical Profession in the Discovery of America.[a] Read by the Author before the Section on General Medicine of the First Pan-American Medical Congress, Washington, D. C., September 7, 1893. [Published simultaneously in the Spanish language.] By A. M. FERNANDEZ DE YBARRA, M.D., New York; Corresponding Member of the Spanish Medico-Chirurgical Academy of Madrid, Spain; the Argentine Medical Circle of Buenos Ayres, South America, and the Society for Clinical Studies, of Havana, Cuba; Official Delegate of the Medico-Legal Society of New York to the First Medical Congress of the Island of Cuba; Executive Assistant Secretary-General of the First Pan-American Medical Congress.

"*Amicus Plato, sed magis amica veritas.*"—ARISTOTLE.

(*Continued from page 172.*)

IN the early part of April, 1494, he had been seized with intermittent fever at Isabella, where the same heat, humidity, porosity of the soil, and presence of decaying vegetable matter, which gave an extraordinary fecundity to the uncultivated fields, worked havoc among the Spaniards. Many of them are also said to have suffered at La Vega the torments of a disease called "the scourge" (syphilis?), the origin of which, whether American or European or Asiatic, has been a subject of great dispute for over three centuries. Dr. Chanca, in his letter to the Chapter of Seville, expresses himself on the situation thus: "One-third of our people have fallen sick within the last four or five days, which I think has principally arisen from the toil and privations of the journey, and another cause has been the variableness of the climate." In another place he says: "The Admiral had at one time determined to leave the search for the mines until he had first dispatched the ships which were to return to Spain on account of the great sickness which had prevailed among the men." Does he refer here to venereal diseases? I incline to the affirmative, but in the sense of gonorrhœal and not syphilitic diseases. Concerning his first statement that one-third of the colonists had fallen sick in four or five days, I firmly believe it was due to the bad quality of the provisions brought from Spain, and to malarial infection, not very well understood in those days. The miraculous *pulvis febrifugus orbis americani* was not yet known to Europeans. The existence and wonderful virtue of "quinquina,"—which later on saved the life of Charles II. of England, Louis XIV. of France, and Friedrich the Great—were then known only to the native inhabitants of undiscovered Peru.

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[a] Reprinted, at the Author's request, from "The Journal of the American Medical Association."

What was that dangerous disease from which Columbus did not entirely recover for nearly five months? Was it a disease of the nervous system? The only affections of that kind most likely to have developed are acute softening of the brain or idiopathic meningitis. But acute softening occurs always in very old persons, is apt to be preceded by mental confusion, a feeling of numbness, and some slight impairment of motion; and in idiopathic meningitis there are from the beginning an intense headache, vertigo, nausea, and vomiting. These two diseases also run their courses generally in a short time, the usual termination in acute meningitis being death; cerebral softening always leaves behind permanent disorder of the mental, sensory, or motor functions.

Could it have been scurvy? Decidedly no, because although scorbutus was in those days a very familiar disease among soldiers and sailors, arising from a deficiency of fresh meat or vegetable diet; and sometimes to be found also in badly ventilated, dark, and damp prisons, owing to the want of proper assimilation of food, neither insomnia, stupor, nor delirium form a part of the onset of this disease. Besides, scurvy is so slow and gradual in its development that the patients do not know when it begins.

In the absence of a clinical history of the case, let us scrutinise a little more the simple historical account of the disease. In going from Mona to Porto Rico, Columbus' fatigue and weakness and want of proper food "cast him into a dangerous disease between a pestilential fever and lethargy, which deprived him of his sense and memory." This is his own way of expressing his malady. It certainly was then one of the following three low-type fevers—typhus, typhoid, or relapsing.

We must not lose sight of the fact that he had just got over a protracted attack of paludal poisoning, which consequently left him in an anæmic and debilitated condition at the time of embarking in this five months' cruise; thus offering an inviting soil for the favourable incubation of a specific, blood-disorganising fever such as one of those above named.

Not knowing the exact bodily temperature, nor the characteristics of its daily variations (and for the best of reasons—the clinical thermometer had not yet been invented), nothing whatever in regard to the peculiarities of the pulse, the actual condition of the skin, the tongue, the bowels, the presence or absence of eruption, epistaxis, lung symptoms, nausea or vomiting, the anomalies of the urinary excretion, &c., we cannot make a good differential diagnosis between those three low, specific fevers. As a rule, we find in all of them the same symptoms of general malaise, weakness, drowsiness, at the beginning of the disease; but my opinion is, however, that it was typhus because of the prolonged convalescence, which must have been due to some pulmonary complication, partial paralysis, scurvy, dysentery, suppurative inflammation of parotid, submaxillary, or inguinal glands, or more probably of the joints. There is another important circumstance which leads me to make the diagnosis of ship fever, and that is that Columbus, as a general rule, very seldom went ashore but remained on board while waiting at the different harbours, coves, anchorages, and roadsteads, thus necessarily exposing himself more to the infection than the average of his companions, whose nervous systems could not have been in such an unstrung and depressed state as his.

When Columbus recovered consciousness at Isabella, he found his dear brother Bartholomew, whom he had not seen for six years, seated by his bedside and tenderly nursing him. This happened on the 8th or 9th of October, which shows that the stupor lasted during the first two weeks of the disease—another diagnostic symptom in favour of typhus.

Early in March, 1496, the immortal navigator sailed for Spain; but he did not arrive there until June 11, having exhausted all their provisions and the famine was such that the crews came near eating up some of the thirty or more Indian captives whom they were taking to Spain. The haggard and starving party dropped anchor in the same harbour of Cadiz, from which many of them had joyously set sail with Columbus two years, eight months, and sixteen days previously.

Columbus started on his third voyage of discovery with a fleet of six ships, carrying about 200 men besides the sailors, from the little sea-port of San Lucar de Barrameda on May 30, 1498. On June 21, at the island of Ferro (the most westerly of the Canaries), the Admiral divided his fleet, sending three ships directly to Hispaniola, while with the other three he steered southwest. Prosecuting his voyage toward the Cape Verde Islands, in the last days of June, and "as he advanced within the tropics, the change of climate, and the close and sultry weather, brought on a severe attack of the gout, followed by a violent fever," says Washington Irving. On the 31st of July he discovered the Island of Trinidad, and caught a glimpse of terra firma at the delta of the Orinoco River; coming out from it through the passage which he named Dragon's Mouth (Boca del Dragon), during the second week of August, "he suffered a great deal from gout and ophthalmia," says Navarrete.

These two are the first distinct and positive historical references to Columbus suffering from gout. As for the transitory ophthalmia, I have already stated my opinion about it, only adding that it is a frequent complication of rheumatism but not of gout. Now I shall endeavour to prove that Christopher Columbus was never affected with gout, which is contrary to the firm belief of all accepted standard non-professional authorities.

Gout is more decidedly hereditary than rheumatism, and occurs in those who live high or drink large quantities of malt liquor, or is seen in persons whose systems have been impregnated with lead. The greatest maritime genius of the fifteenth century was of too humble birth to have inherited the gouty diathesis, and too frugal in his habits to have acquired a malady the result of over-indulgence in the pleasures of the table, especially when cruising with very scanty provisions; surely there could not have been much lead in his system. Gout is characterised by the occurrence of paroxysms of severe pain in a small joint,—the great toe usually. Gout in the foot is called *podagra;* gout in the hand, *chiragra;* and gout in the knee, *gonagra.* But Columbus suffered pain in several joints, of the upper as well as the lower extremities, whose movement was slow, rigid, and jerking, so that it was accomplished with difficulty, and his disorder, therefore, could not very well be placed under any of these three Latin divisions of gout.

There are yet two very important diagnostic factors against the theory of gout—viz., the season of the year in which exists the greatest tendency to the occurrence of the seizures (winter), these two first attacks taking place in the middle of the summer, and, moreover, that we meet in the course of the distemper with no cardiac complication, at least no valvular affection, as so constantly happens in rheumatism, and which sequel was the ultimate result of the disease that launched Columbus into eternity; and, furthermore, in complete possession of all his mental faculties, which does not occur in gout, where the morbid changes induced in the kidneys give rise to cerebral symptoms at the time of death.

The Admiral arrived at Isabella on the 30th of August, was immediately put in irons and thrown into prison by Bobadilla, who had come from Spain a week before. While confined in prison, and deprived of intercourse with any one, loaded with fetters and chains, in the fort of the little town, he was sick for several days, probably with intermittent fever or rheumatic pains, improperly called gout. He was put on board a vessel and sent to Spain early in October, 1500, arriving at Cadiz on a December day, and as he passed, his stately and venerable figure burdened with shackles and chains, through the streets of that city, he awakened a great popular outburst of sympathy for him and indignation at his persecutors, which reproof immediately repercussed in the wealthy cities of Seville and Granada.

Fortunately the passage had been calm and fair, and of but moderate duration, rendered also less disagreeable by the kind treatment of Alonzo de Villejo, to whom he was given in custody.

While on board the ship he had written a long and eloquent letter, full of pathos, to Dona Juana de la Torre, the nurse (*ama*) of Prince Juan, a lady high in favour with Queen Isabella, to whom her brother Antonio, a fellow-voyager of Columbus, straightforth carried the epistle on landing. In studying the ideas and wording of this remarkable letter, I find that his reason was just beginning to lose equipoise under the strain of the great humiliation he was then enduring, and the disordered condition in which his unexpected, unwarranted, and unworthy arrest had thrown all his private affairs. This clouded state of his intellect suffered a more aggravated relapse on two or three other occasions, when in moments of despair and heartrending anguish his religious enthusiasm completely overpowered his understanding, and of which I will speak later on.

During the seventeen months elapsing between his arrival from the third voyage and his departure again on the fourth, not a word, that I know of, is said in history about Columbus being afflicted with gout, which is a strong argument against the theory of his suffering from that malady. When much better fed, in company of cavaliers and rich men, he should have had more paroxysms of that "eminently respectable disease," as Sydenham used to call it, than when living as a sailor on strange seas, short of the most necessary provisions.

The equipment of the fleet on the fourth and last voyage consisted of four small caravels, with crews numbering, all told, 150 men. Columbus' brother Bartholomew, and his younger son Fernando, then a boy of fourteen, accompanied him. They sailed from Cadiz on the 11th of May, 1502, and on the 7th of November, 1504, after a tempestuous voyage and narrow escape from shipwreck, he landed back at San Lucar de Barrameda, so sick and thoroughly worn out that he could not personally go to Court to give an account of his new discoveries, but had to send in his place his youthful son, Fernando.

While sailing along the coast of Honduras, in the middle of August, 1502, there was an incessant tempest with heavy rains and such thundering and lightning that "it seemed as if the end of the world was at hand." The vessels had been so violently tossed about that their seams opened, and the provisions were damaged by the rain and by the leakage. During a great part of this time Columbus "suffered extremely from the gout, aggravated by his watchfulness and anxiety." His illness did not prevent him, however, from attending to his duties; he had a small cabin constructed on the stern of his vessel, from which, even when lying down on his bed, he could keep a lookout and direct the course of the ships. Columbus himself says that "many times he was so ill that he thought his end approaching."

The little fleet at last succeeded in passing the Cape Gracias à Dios on September 14, after struggling with the wind and the waves and the currents for about forty days. When on the coast of Veragua (Republic of Costa Rica), in the middle of October, many days of constant mental disturbance and nights of sleepless anxiety, preyed upon a constitution undermined by a slow blood poison, by grief and disappointment, by hardships, by unhygienic surroundings, and by want of proper treatment, finally producing an illusory vision, deemed by Columbus in his religious conceit of private revelation to be really God-sent and supernatural. In a letter to the sovereigns of Spain he gives a very solemn account of this hallucination, in which he heard in the course of a vivid dream a piteous voice reminding him of Scriptural passages to comfort and encourage him to trust in the Almighty. Such psychical perturbation can easily be explained if we take into consideration Columbus' highly imaginative cerebration, his exalted religious conceptions, his daily devotional exercises, and his deep-rooted belief that he was the chosen one from among men to carry the light of the true faith into far-distant, unenlightened, and pagan lands. This favourable field, when well ploughed by a chronic and painful disease, and harrowed by the iron teeth of grief, could without difficulty produce a momentary phonomania. Like the firm trust of all-impassioned religious or political reformers, his sublime reliance in his lofty predestination certainly served him to overcome the multitude of obstacles he found in his path. And here we find the proof once more of the undiscernible and undefinable boundary between insanity and genius.

Whilst visiting Jamaica in the latter part of June, 1503, in which island he was obliged to spend a year, Columbus suffered another attack of the so-called gout, and malarial fevers of long duration, on the shores of the harbour of Santa Gloria, known to-day as St. Anne's Bay, which rendered him a cripple.

During all this fourth voyage his mental and physical condition was very much weakened, though hope, to be sure, had not altogether departed from his ardent and sanguine nature; but it was a hope that had experienced many reverses, and its pinions were sorely clipped. His voyages of discovery always involved hardships enough to wear out the strongest human frame, having to navigate among unforeseen dangers, without chart or pilot or previous knowledge of the countries, their inhabitants, or language; to keep a constant and anxious watch at all hours, in all kinds of weather, subject to the caprices of the wind, and without proper food. Age was already rapidly making itself felt when Columbus undertook this, his last, and most disastrous cruise (55 years old), the ultimate ten years of which were filled with care, physical ailments, and troubles of many sorts. For several weeks before he landed back at San Lucar de Barrameda, his tiny ship was thrown hither and thither in mid-ocean by violent winds and hill-like waves, combined with tropical showers; all that time Columbus was suffering the most excruciating pains from his old malady, until his crazy and shattered little bark anchored in the harbour, with her haggard, emaciated, crippled, and almost blind master aboard.

From San Lucar he had himself conveyed to Seville, where he hoped to enjoy the much-needed rest of mind and body, and to recruit his health; but Fortune continued to frown upon him, for he ascertained on arriving at that city that all his private affairs were in a state of confusion and entanglement. Since he had been sent to Spain from San Domingo, shackled like the vilest of culprits, when his house and effects had been seized and confiscated by order of Bobadilla, his rents and dues had been unlawfully retained in possession of Governor Ovando, the successor of Bobadilla in command of the island. He was, therefore, in actual penury. He remained at Seville during the rest of that winter and part of the following spring, a victim of his chronic and painful illness.

At the beginning of May, 1505, feeling a little better, he went with his brother, Bartholomew, to Court, then sojourning at Segovia, to personally plead for his rights. While there "he was once more confined to his bed by a tormenting attack of the gout, aggravated by the sorrows and disappointments which preyed upon his heart." From this couch of anguish he addressed one more pathetic appeal to the justice of the king, but ah, all in vain!

He sought consolation in devoutly reading the prophecies of the Holy Scriptures and the writings of the Fathers of the Church, and wrote a religious book and a final long letter, full of poetic mysticism, to that selfish and ungrateful King, Ferdinand, the noble and magnanimous Queen, Isabella, having already expired the year before. In making a hurried psychological study of these two opuscules, I find that for the third time the intellect of Columbus was clouded with delusion. The extravagances of his overwrought imagination must not, however, be entirely judged as they appear at the present day. They were in perfect sympathy with the quintessence of those times, when the spirit of the Crusaders was still rampant, when the conquest and fanatical expatriation of the Moslem had just been accomplished, and the Inquisition permeated, enslaved, and terrorised the whole Spanish kingdom.

So poor and helpless at last he found himself, after uselessly following the Court from place to place, that he accepted the modest home offered him by kind-hearted and charitable Gil Garcia—a sailor—at Valladolid, Magdalen-street (now called Colón), house No. 7. There, propped up in his lowly bed, suffering just as much from the cardiac complications of chronic rheumatism as from mental anguish and dejection, and want of proper medical attendance, looking a great deal older than he really was, but with loftiness of heart, the religious enthusiasm of an old prophet, and Christ-like forgiveness for all his persecutors, under those long, curling white hairs of his, and the grey robe of the order of St. Francis—of whom he had been a great devotee—in which he begged to be clothed and buried, he was uttering words which, to anybody unacquainted with his life, would have seemed very strange indeed. For he was speaking to his two sons and his confessor, Fray Gaspar de la Misericordia, of little else but of another world—not the world of the unknown and unknowable, nor the house not made with hands, eternal in the heavens, to which he was soon to go—but of a New World on this planet of ours, where he had been; of which he was the first to give a faithful account, and to bring from it men of an unheard-of race, and most wonderful specimens of the animal and vegetable kingdoms; a world which should be for ever associated with his name, and which will be, without any doubt, for all coming ages an inexhaustible field for commerce, for industry, for agriculture, for benevolence, philanthropy and liberty—a true material salvation of the whole human race.

He took his departure from this life on Ascension Day, May 20, 1506, a servant satisfied of his work and honourably dismissed from the visible terraqueous globe, which he had very much enlarged, to go to the invisible and everlasting hereafter, whither all of us are marching on, pronouncing with great unction these sublime Latin words: *In manus tuas Domine commendo spiritum meum.*

What was the cause of Columbus' death, and what part did the medical profession take in the discovery of America?

I have just remarked that he died from the cardiac complications of chronic rheumatism, thus contradicting all the standard historical authorities who assert he was a victim of gout. My humble opinion is that the chronic form of poly-articular rheumatism was not developed slowly, but succeeded to an acute attack, and that this first invasion of the disease occurred on the last days of June, 1498, after Columbus left the Cape Verde Islands, on his third voyage. "The atmosphere was loaded with clouds and vapours; neither sun nor stars were to be seen; a sultry, depressing temperature prevailed," says Washington Irving. A little farther along in his narrative the same high historical authority adds that on July 13 the ships "had entered a region where the whole sea was like a mirror, and the vessels remained almost motionless, with flapping sails; the crews panting under the heat of a vertical sun, unmitigated by any refreshing breeze." The sailors lost all strength and spirits, and there was in the atmosphere, owing to drizzling showers, that combination of heat and moisture so well adapted for a genuine attack of acute rheumatism, and entirely unfavourable for the development of a paroxysm of gout. But the presence of the rheumatic poison was clearly evident in the accompanying "violent fever." Gout is not ushered in by high fever, and during the hours of severe suffering the skin usually remains dry, a general sense of relief being experienced just as soon as a profuse perspiration sets in. A warm climate exerts for that reason a beneficial effect on the occurrence of the seizures of gout. As for the peculiarity of the first attack making its appearance at night, between the hours of 12 m. and 5 a.m., I cannot say anything, because the exact time at which it occurred is nowhere recorded.

Those writers who have minutely described the last few months of the life of Christopher Columbus state that when he was confined in bed *his body was extraordinarily swollen from the chest downwards.* Here we have the cardiac dropsy met with as the final and fatal result of an old inflammation of the endocardium, brought about almost invariably by an attack of acute rheumatism. The shrinking and induration of the valve curtains of the heart and their tendons, as a sequel of endocarditis, and the hypertrophy and dilatation of the cardiac walls to which these pathologic changes give rise, owe their chief importance to the purely mechanical disturbance of the blood circulation thereby induced, the action of the heart becoming more and more feeble every day until death at last closes the scene.

The cardiac complications of rheumatism (endocarditis, pericarditis, myocarditis) are by far the most frequent, being present in more than 50 per cent. of all cases, and constitute the commonest cause of death in this disease. Bouillaud was the first to recognise the frequency of such accidents, and his great discovery that "their occurrence is the rule rather than the exception in rheumatic fever," has stood the test of all subsequent observers, and remains to-day one of the best established facts in clinical medicine.

Having finished saying what I had to say about the medical history of the immortal discoverer of this New World of ours, I will end by putting upon record the names of those belonging to our noble profession who directly contributed to the realisation of such a momentous event in history. The clear intuitions of Avicenna, "the Prince of Physicians," as he was called; the advice and encouragement given to Columbus by the Florentine physician and distinguished cosmographer, Paul Toscanelli; the modest village doctor, Garcia Fernandez, who, as an improvised expert in mental diseases, won for the perambulating genius the respect and sympathy of the worthy prior of the Monastery of Rabida; the very important fact that, although it is proved beyond doubt that no priest accompanied Columbus on his voyage, there were two representatives of our profession among his followers—Maestro Alonzo and Maestro Juan—two ship surgeons or *fisicos ;* and last, but not least, the learned author of the very first scientific report on America, Dr. Diego Alvarez Chanca, who came over with Columbus on the second voyage, and saved his life during a protracted and dangerous attack of typhus fever. All these facts, scattered in many old books and pamphlets, worm-eaten in dusty archives, are here collected and presented as *pièces justificatives* of the noteworthy part taken by the medical profession in the discovery of the Western Continent.

Almost every one who has written the life and voyages of the immortal Genoese navigator—and their name is legion—speaks of the probable sources of his information about the existence of a western route to the East Indies. But none of them that I am aware of refers to the writing of Avicenna as a possible fountain of suggestion. This eminently successful physician and most wonderfully learned man was born at the village of Afshend, in the province of Bokhara, Turkestan, Central Asia, in 980 A.D., and died in 1037. Besides his resplendent medical knowledge, he was a profound philosopher, a skilful rhetorician, excellent geometer, well versed in astronomy and astrology, a shrewd theologian, an accomplished naturalist, and a very fine musician. During the last fourteen years of his life he wrote a considerable number of works on widely different subjects, among which his treatise entitled "De Complexionibus," section 1, chapter 1, where he cites the opinion of Aristotle expressed in his work, "De Causis Propietatum Elementorum," is an able speculation on the existence of the Antipodes.

Paolo del Pozzo Toscanelli was born at Florence in 1397, studied medicine in his native city and became one of the most famous astronomers and cosmographers of his time. On account of his great reputation in nautical science he was constantly consulted by bold navigators from different countries, who unhesitatingly followed his advice and the course marked down for them in the charts Toscanelli himself drew. He was thoroughly acquainted with the scientific and geographical literature of the Greek and Latin classics; became one of the keepers of the celebrated Florentine Library at the age of 30 years; erected, about 1468, the famous gnomon on the uppermost part of the dome of the cathedral at Florence; died in that city on the 15th of May, 1482. To this distinguished member of our profession Columbus applied, beseeching his opinion and advice in regard to his contemplated stupendous enterprise, as had also done a few days before, on the same subject, the powerful King of Portugal. Like the truly scientific and generous man that he was, not only did he immediately answer the two letters of the then obscure sailor, confirming him in his views of the figure of the earth and the practicability of a voyage westward to India, but also sent him a chart drawn by his own hands in which was marked and explained the course Columbus should follow to reach there in safety. This very chart was the one used by the Admiral on his first voyage of discovery. He showed it to Martin Alonzo Pinzon, captain of the caravel *Pinta*, while sailing on the *mare incognitum*, *tenebrosum*, and both frequently sat on deck discoursing upon it. The historian, Las Casas, a contemporary and friend of Columbus, says he saw it and had it in his possession. But it has been irretrievably lost.

The ancient convent of Franciscan friars, dedicated to Santa Maria de la Rábida—where Columbus halted, accompanied by his young son, Diego, hungry, thirsty, dressed in tatters, full of dust and tired from having tramped many miles—is situated about half a league from the village of Palos de Moguer, in Andalusia, Spain. The humble physician of this little maritime town was Dr. Garcia Fernandez, who enjoyed the friendship and high regard of the respected prior of the Monastery, Juan Perez de Marchena. This patriotic friar detained Columbus there as his guest, and, diffident of his own judgment as to the sanity of the distinguished-looking foreigner, sent for his scientific friend, the village doctor, to converse with him and inquire into his mental state. Dr. Fernandez was equally struck with the intelligent appearance and entertaining conversation of Columbus. He discussed with him several geographical and astronomical topics, and became convinced that he by no means was talking to a madman but to a genius. His clear discernment at once detected the possibility of the adventure Columbus was pursuing, and won for him, with his favourable report to the Prior, the good will and invaluable aid of that influential religious man. What the result would have been if that unassuming and kind village doctor had given an unfavourable opinion, nobody can tell.

Among the few brave men that dared accompany Columbus on his first voyage of discovery to America were two representatives of our philanthropical profession. Maestro Alonzo was the name of one, and Maestro Juan that of the other. The first seems to have been the better known of the two, and came over in the caravel *Santa Maria*, commanded by Columbus, while the second was more a friend of Martin Alonza Pinzon, and embarked in his vessel *Pinta.* This last remained at the little fort of Navidad when Columbus returned to Spain, being one of the thirty-eight men massacred by the native Indians of San Domingo, and thus paying with his life for his professional devotion. The small band of foolhardy Spanish colonisers were under his medical care.

I have already referred to Dr. Diego Alvarez Chanca, who came with Columbus on his second voyage, and saved his life and that of many hidalgos at the point of death in the Island of Hispaniola or San Domingo. The account given by this distinguished man of science to the municipal council of his native city is undoubtedly an unpretentious evidence of the wide range of his scientific knowledge, and constitutes the first sketch of the flora, the fauna, the ethnology, and climatology of our dear American continent. He also wrote, on his return to Spain, a work entitled, "Comentum Novum in Parabolis Divi Arnaldi de Villanova," published at Seville in 1514.

In conclusion, we, as a class, have sufficient reason to feel proud of the active part taken by members of the medical profession in the discovery of this beautiful land of ours, where the "divine right of kings" is no longer possible, and when the great Chicago World's Columbian Fair has given imperishable existence to the memory of its discoverer.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—George H. Kidd, M.D., F.R.C.S.I.

General Secretary—W. Thomson, F.R.C.S.I.

SECTION OF OBSTETRICS.

President—Richard D. Purefoy, M.B., Univ. Dubl.

Sectional Secretary—F. W. Kidd, M.D.

Friday, April 13, 1894.

The President in the Chair.

Ovary and Tube Removed for Recurrent Salpingitis.

Dr. Alfred Smith showed a tube and ovary which he removed on March 21st, 1894, from a married woman, aged twenty-nine, who suffered from a severe pain on the right side, of a burning dragging character, referred to a point two fingers in width below and to the right of the umbilicus; this pain was constant and at times became very much worse, especially before and during the menstrual periods. There were extensive adhesions of the omentum to the abdominal wall, and evidence of general adhesive peritonitis. The ovary and tube were removed after considerable difficulty. Peritoneal bands, which were constricting the Fallopian tube on the left side, were broken down. The vermiform appendix, which was adherent and fixed by peritoneal adhesions, was released. Recovery perfectly afebrile and uneventful.

April 8th.—Changes came on; old pain disappeared.

April 11th.—Changes completely over, and leaves hospital cured.

Myomatous Uteri and Ovaries, and Appendages, removed for Recurrent Peritonitis.

Dr. W. J. Smyly showed—1. A large myomatous uterus, which he had removed by abdominal section. The operation was exceedingly difficult owing to two of the largest tumours having to be enucleated from the cellular tissue. One of these almost filled the true pelvis and caused so much distress by pressure as to necessitate the operation. The vagina was so compressed and distorted as to render its disinfection very difficult, and her death from peritonitis on the third day was probably due to this. 2. The second uterus, which was about as large as a cocoanut, and reached to within an inch of the umbilicus, was the first case in which he had removed a large myomatous uterus per vaginam by morcellement. He was, however, very favourably impressed, especially by the comparative absence of shock. 3. Ovaries and appendages removed for recurrent attacks of peritonitis. Upon opening the tubes after removal he was surprised to find them distended with blood.

Mr. M'Ardle thought that possibly Dr. Smyly's patient had died of thrombosis of the pelvic veins, causing emboli in the lungs. He had seen two similar cases, in which death occurred suddenly, and in which he discovered this to be the cause.

Dr. Smyly said that a *post-mortem* examination of the patient had been made, and that acute peritonitis had been found.

Dr. A. J. Smith said that double hæmatosalpinx was usually associated with double obstruction high up in the canal. Hæmatosalpinx is usually the outcome of tubal gestation.

Anencephalic Monster.

Dr. F. W. Kidd exhibited an anencephalic monster. There were some points of interest. The mother of this monster was only fifteen years and ten months old when it was born. She was only seven and a half months pregnant. She had had an *ante-partem* mammary abscess a month previously, which was opened and dressed at the Coombe Hospital. The monster presented by the face, the general rule in these cases being breech or transverse; it just breathed after birth. There was only one nostril. There was spina bifida of cervical and upper dorsal vertebræ, and double talipes. At the same time as the patient had the mammary abscess she had collections of pus at the base of two finger nails. The same breast suppurated in another place after delivery.

Dr. Smyly thought there might be some connection between the pus under the patient's finger nails and the *ante-partem* mammary abscess.

Dr. E. H. Tweedy said that during the past year he had seen two similar cases. In one of the women a small sinus still existed when she was delivered, and perhaps she might have infected herself from it, for she had an attack of puerperal fever. He thought that parturient women should, if possible, have no open sores.

Dr. W. H. Thompson mentioned another case of *ante-partem* mammary abscess.

Ruptured Tubal Pregnancy.

Dr. Alfred Smith read a paper on this subject. [It will be found in Vol. XCVII., p. 397.]

Dr. More Madden, having congratulated Dr. Smith, said that it was a most interesting feature in the case that no fœtus could be found. The embryo usually escapes into the peritoneal cavity and perishes. Cases of tubal pregnancy are more frequent than is usually supposed.

Dr. Smyly said that success in these cases depends upon decision. The most difficult part of the operation is to decide to open the abdomen. When you are called to see a lady who, a few hours previously, was in perfect health, and who was seized with a fainting fit, you naturally hesitate to operate, hoping that, as sometimes happens, she may get all right, and then perhaps when she gets another fainting fit you imagine that the time for operation is past. He was astonished at the number of tubal pregnancies he had seen when in Berlin. An assistant in one of the hospitals told him that they got one on an average every fortnight. He thought Dr. Smith's case to be a typical one of "tubal abortion."

Dr. E. H. Tweedy said that flushing out the abdomen with hot water added to and never lessened the shock attending abdominal operations.

Mr. M'Ardle said that it was well before inverting the patient to remove as much blood clot as possible from the pelvis and abdomen.

Dr. Bate asked Dr. Smith did he think there was any connection between the tubercular disease of her lungs and the ruptured tube.

Dr. Smith, in reply to Dr. Bate, said he really could not tell. He said that it was a curious fact, and perhaps it was only a coincidence, that all the patients suffering from tubal pregnancies of whom he had any record had been curetted some six or eight months previously. In this operation he had not used *hot* water, but saline solution of the temperature of the body. A marked improvement in the circulation followed its use.

The Section then adjourned.

SECTION OF PATHOLOGY.

President—Prof. J. Alfred Scott.

Sectional Secretary—J. B. Story, F.R.C.S.I.

Friday, April 27, 1894.

The President in the Chair.

Exhibits.

Dr. W. H. Thompson exhibited a fresh fœtus with malformation of the posterior part of the head and of the neck.

Dr. Story wished to know did he consider the specimen as an exaggerated instance of spina bifida, in which the non-closure existed in the occipital region.

Dr. Nixon suggested that a careful dissection should be made.

Dr. Thompson briefly replied.

Dr. Norman showed microscopic preparation of a sarcoma of the kidney.

Cerebral Topography.

Mr. F. Alcock Nixon read notes of a case of head-injury illustrating some points in cerebral topography. The patient suffered from concussion and compression of the brain. There was inflammation of the membranes at the base, implicating the 7th, 8th and 9th nerves. Blood clots occupied the auditory and speech centres. The difficulty of an accurate diagnosis arose from the co-existence of inflammation and pressure symptoms, the latter predominating, and to a great extent obliterating many of the symptoms which would have been present in a case of pure meningitis and cerebritis.

Dr. Story asked were any external injuries visible. It would be extraordinary if with such extensive intracranial injury no external marks were to be seen.

Mr. Nixon replied that he had examined the scalp with care, and could not find any external sign of injury. On cutting into the scalp, *post-mortem*, he found a clot in the occipital region corresponding to the internal injury.

Tertiary Syphilis of the Larynx.

Dr. R. H. Woods exhibited a specimen showing tertiary syphilis of the larynx. The patient from whom it was taken contracted venereal disease at the age of twenty, and a year later was tracheotomised in the Richmond Hospital for stenosis of the larynx, caused by gummatous infiltration of the false vocal chords. After some weeks' treatment and rest the swelling subsided, the tube was removed, and the patient discharged. In spite of the cautioning he received on his dismissal, he drank heavily, and exposed himself by sleeping out of doors, with the result that a few weeks later he was brought to hospital almost asphyxiated. Tracheotomy was again performed, and the tube left permanently in. Twelve months later he died from acute pneumonia. The larynx at its junction with the trachea was so stenosed as scarcely to admit the passage of a goose quill. There was no ulceration.

The Section then adjourned.

SECTION OF SURGERY.

President—Edward Hamilton, President of the Royal College of Surgeons in Ireland.

Sectional Secretary—Kendal Franks, F.R.C.S.I.

Friday, May 4, 1894.

Sir W. Stokes in the Chair.

Naso-pharyngeal Fibroma.

Dr. R. H. Woods read a paper on Naso-pharyngeal Fibroma.

The patient whose case was detailed was a young man, aged twenty-four, who about May, 1888, noticed a difficulty in breathing through his nostrils. This difficulty progressed to complete nasal obstruction, associated with giddiness, failure of memory, and great drowsiness. Towards the end of 1889 he was operated on by two American surgeons consecutively but without being materially bettered. In 1891 he put himself under the care of Mr. Thornley Stoker who operated on his nose from the front, but who did not attempt a radical removal of the growth owing to the extent of its attachments and the fierceness of the hæmorrhage. Mr. Stoker, in January, 1892, transferred the case to Dr. Woods.

At this time the whole naso-pharynx and the greater part of the left nasal fossa were filled with a typical fibroma. Nasal respiration was completely stopped, and his voice was without nasal tone. Dr. Woods repeatedly operated with the galvanic snare and lopped off pieces until the snare would no longer grip. He then devised an instrument which he calls a "galvanic curette," and which consisted of a semicircle of platinum wire brazed to the ends of two insulated copper rods; the platinum arc could be heated at will by an electric current. With this instrument he ploughed the tumour away piecemeal, sometimes attacking it from the front through the nostril, and sometimes from behind through the naso-pharynx.

The patient never suffered very much, and the bleeding was never very considerable. By January, 1893, the tumour was completely removed and the patient perfectly well again. His voice was quite normal and admitted of his adopting the stage as his profession.

The advantages claimed for this method of operating are the following:—1. It is less dangerous and more certain than any other method, experience proving the bleeding to be trivial. 2. The patient is neither maimed nor disfigured, as frequently happens in cases of operation where the nose is cut or the palate divided by any of the well-known methods. 3. There is no danger of injuring healthy structures, since the operator can see exactly what he does.

Sir William Stokes congratulated Dr. Woods on his success, and said that formerly this case would have required to be treated by an operation which would have necessitated great cicatricial deformity, in which there would have been danger from hæmorrhage at the time of operation, and which would have been difficult of performance. Dr. Woods' method gets rid of all these objections, and the shock to the patient is infinitely less. It seems to him that nasal polypi were less likely to recur after removal by the galvano-cautery than after removal by other methods. Perhaps this might be due to the firm cicatrix produced by a cautery.

Mr. Swan wished to know could this method be applied to removing osseous growths.

Mr. F. A. Nixon asked Dr. Woods did he think the disappearance of the somnolence to be due to the removal of the tumour.

Mr. Maxwell said that inability of concentrating one's mind upon work is a rather common symptom in adenoid tumours occurring in the naso-pharynx. Their removal often resulted in the patient being freed from this symptom. He had occasionally noticed that patients, shortly after operation, complained of pain in the occipital region.

Dr. Myles mentioned a case in which he had assisted the late Dr. Robert M'Donnell. The patient had a recurrent growth in the naso-pharynx. It had been previously operated on by the snare, but had recurred. Dr. M'Donnell determined to try and gouge away the growth from the front. He succeeded in detaching the tumour, but the hæmorrhage was something appalling. The patient recovered, but the growth afterwards recurred, and came under the care of Mr. Thomson at the Richmond Hospital.

Mr. Thomson said that he had not much difficulty in removing the recurrent growth when the case came under his care. The tumour was reached by splitting the nostril and raising the lip. Recurrence took place in fifteen months, and the tumour was again removed. The boy lived for two years, but he had not been able to find out what was the cause of his death. The only objection he saw to Dr. Woods' method was that it was rather a prolonged procedure. He did not think any cicatrix would prevent the recurrence of a tumour if the tumour was one of those which had a tendency to recur. By this method the disease might be more thoroughly attacked and got rid of, and this element seemed to have more to do with preventing recurrence than a firm cicatrix.

Mr. Chance wished to know would the time of treatment be shortened if a plastic operation giving greater room were first done and then Dr. Woods' instrument immediately applied.

Dr. Woods, in reply, stated that diminished likelihood of recurrence of the tumour he considered to be due to the method being more thorough. He saw no reason why the instrument should not be used to remove exostoses, particularly those in the external auditory meatus. In all cases of naso-pharyngeal tumours there existed in the patient great stupidity. The drowsiness and somnolence he considered to be this stupidity in a greater degree. With regard to Mr. Chance's suggestion, he did not think that it could be followed, because the very essential for success in the operation was that you should see exactly what you were doing. The bleeding consequent on a plastic operation would prevent this.

Hydroceles of the Neck.

Mr. Wheeler read a paper entitled "On Hydroceles of the Neck."

Sir William Stokes said that, as far as his experience went, the treatment of tapping the hydroceles and injecting iodine was not successful. Either the cyst quickly refilled or such extensive inflammation was set up as to endanger the patient's life. He advocated free incision and dissecting out the cyst. In a case he had operated on last January he had found the wall of the cyst exceedingly thin, and the contents of the consistence of glycerin. The sub-maxillary gland he also found enlarged and he removed it. Since the operation the patient has had no recurrence of the disease. He had been a soldier in India, and when there, four years ago, became troubled with this swelling. It was tapped but recurred, and was tapped twice again. After the last tapping the disease did not recur for three years, when the patient came under his care.

Mr. Swan said he thought these hydroceles were due to a failure of closure of the branchial clefts occurring in the embryo. Many years ago he saw a case of a lady with a supernumerary auricle in the neck. She developed what he believed to be a hydrocele of the corresponding branchial cleft, for a cystic tumour arose extending from the auricle deep into the substance of the neck and ultimately reaching the wall of the pharynx. It burst in front of the auricle.

Mr. Wheeler, in reply, stated that in all cases of recorded hydrocele the fluid withdrawn had been quite watery and not like glycerin in consistence. He doubted, for this reason, whether Sir William Stokes' case was a true hydrocele. A true hydrocele was usually too deeply attached to admit of dissecting it out.

The Section then adjourned.

NARCOTICS AND TEMPERATURE.

In *The Hospital* Sir B. W. Richardson points out that decline of temperature follows the administration of all narcotics *except* opium, and lays down the practical rule: "When a narcotic is demanded, and the animal temperature is normal, prescribe an opiate; but when there is pyrexia avoid opium, or combine it with some other agent or agents that have a counteracting effect, in so far as elevation of temperature is concerned."

SUICIDE IN NEW YORK.

Suicide throughout the civilised world is increasing in frequency compared with population and with general mortality. The *Medical Record* (27th Jan., 1894) tabulates the total mortality and the number of suicides in New York city for nine years (1883–1893), showing that "while the general mortality has increased since 1883 about one-fourth, the suicidal mortality has increased nearly one-half. In 1892 the number of suicides was 241; in 1893, 313—nearly one-third higher. From 1870 to 1880 the annual average was 150; during the decade ending in the present year there have been, in round numbers, 2,400 suicides, or about 240 a year."

SANITARY AND METEOROLOGICAL NOTES.

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Vital Statistics

For four Weeks ending Saturday, August 11, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	July 21.	July 28.	Aug. 4.	Aug 11.		July 21.	July 28.	Aug 4.	Aug. 11.
Armagh -	7·0	21·0	21·0	14·0	Limerick -	14·0	16·8	25·3	9·8
Belfast -	22·1	19·4	17·0	20·1	Lisburn -	21·3	29·8	12·8	17·0
Cork -	24·2	22·1	17·3	24·9	Londonderry	23·6	12·6	23·6	12·6
Drogheda	0·0	30·7	17·6	8·8	Lurgan -	9·1	31·9	13·7	9·1
Dublin -	16·7	21·6	19·5	17·5	Newry -	8·1	12·1	16·1	24·1
Dundalk -	0·0	20·9	8·4	0·0	Sligo -	5·1	15·2	20·3	40·6
Galway -	34·0	3·8	7·6	26·4	Waterford -	10·0	15·0	20·0	5·0
Kilkenny	28·3	14·2	14·2	18·9	Wexford -	27·1	22·6	18·1	9·0

In the week ending Saturday, July 21, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 16·8), was equal to an average annual death-rate of 16·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 16·9 per 1,000. In Glasgow the rate was 17·3, and in Edinburgh it was 14·6.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 18·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·0 per 1,000, the rates varying from 0·0 in nine of the districts to 5·0 in Belfast—the 114 deaths from all causes registered in that district comprising 16 from measles (an increase of 6 as compared with the number for the preceding week), 2 from whooping-cough, 1 from diphtheria, 2 from enteric fever, and 5 from diarrhœa. Among the 35 deaths from all causes registered in Cork are 3 from measles, 2 from whooping-cough, and 1 from diarrhœa. The 10 deaths in Limerick comprise 2 from scarlatina.

In the Dublin Registration District the registered births amounted to 195—107 boys and 88 girls; and the registered deaths to 117—58 males and 59 females.

The deaths, which are 36 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 17·5 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 16·7 per 1,000. During the first twenty-nine weeks of the current year the death-rate averaged 26·4, and was 2·3 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 15, being 6 over the low number for the preceding week, but 11 under the average for the 29th week of the last ten years. The 15 deaths consist of 1 from small-pox, 1 from measles, 1 from scarlet fever (scarlatina), 1 from whooping-cough, 4 from enteric fever, 6 from diarrhœa, and 1 from erysipelas. The death from small-pox, which is the only fatal case of the disease registered in the Dublin Registration District since the month of March, 1888, is that of an unvaccinated boy aged 3 years who died in the Hardwicke Hospital on July 16.

The hospital admissions for the week did not include any cases of small-pox. During the preceding week 4 cases of the disease had been received. Seventeen small-pox patients remained under treatment in hospital on Saturday.

Sixteen cases of enteric fever were admitted to hospital against 8 in the preceding week: 2 patients were discharged, 2 died, and 62 remained under treatment on Saturday, being 12 over the number in hospital on Saturday, July 14.

Thirteen cases of scarlatina were admitted to hospital, being 7 over the admissions for the preceding week: 9 patients were discharged, 1 patient died, and 41 remained under treatment on Saturday, being 3 over the number in hospital at the close of the preceding week.

Only 11 deaths from diseases of the respiratory system were registered, being 10 under the average for the corresponding week of the last ten years and 9 under the number for the week ended July 14. They comprise 6 from bronchitis and 4 from pneumonia or inflammation of the lungs.

In the week ending Saturday, July 28, the mortality in thirty-three large English towns, including London (in which the rate was 17·2), was equal to an average annual death-rate of 17·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·1 per 1,000. In Glasgow the rate was 14·8, and in Edinburgh it was 13·8.

The average annual death-rate in the sixteen principal town districts of Ireland was 20·1 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·5 per 1,000, the rates varying from 0·0 in eight of the districts to 5·6 in Limerick—the 12 deaths from all causes registered in that district comprising 4 from scarlatina. Among the 100 deaths from all causes registered in Belfast are 9 from measles (being 7 under the number for the preceding week), 2 from scarlatina, 4 from whooping-cough, 1 from ill-defined fever, 3 from enteric fever, and 4 from diarrhœa. The 8 deaths in Londonderry comprise 2 from diphtheria.

In the Dublin Registration District the registered births amounted to 199—106 boys and 93 girls; and the registered deaths to 149—84 males and 65 females.

The deaths, which are 6 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 22·2 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the district, the rate was 21·6 per 1,000. During the first thirty weeks of the current year the death-rate averaged 26·3, and was 2·2 under the mean rate in the corresponding period of the ten years 1884–1893.

Only 13 deaths from zymotic diseases were registered, being 11 below the average for the corresponding week of the last ten years, and 2 under the number for the week ended July 21. They comprise 2 from scarlet fever (scarlatina), 1 from typhus, 3 from whooping-cough, 1 from enteric fever, 3 from diarrhœa, and 1 from erysipelas.

Four cases of small-pox were admitted to hospital. Twenty-one cases of the disease remained under treatment in hospital on Saturday.

The number of cases of enteric fever admitted to hospital was 11, being a decline of 5 as compared with the admissions for the preceding week: 5 enteric fever patients were discharged, 1 died, and 67 remained under treatment on Saturday last, being 5 over the number in hospital at the close of the preceding week.

Only 4 cases of scarlatina were admitted to hospital, being 9 under the admissions for the preceding week: 4 patients were discharged, and 41 remained under treatment on Saturday, being equal to the number in hospital on the previous Saturday.

The number of deaths from diseases of the respiratory system registered was 16, being 5 over the low number for the preceding week, but 3 under the average for the 30th week of the last ten years. The 16 deaths comprise 9 from bronchitis and 4 from pneumonia or inflammation of the lungs.

In the week ending Saturday, August 4, the mortality in thirty-three large English towns, including London (in which the rate was 17·6), was equal to an average annual death-rate of 17·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 16·3 per 1,000. In Glasgow the rate was 17·6, and in Edinburgh it was 14·8.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 18·4 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·1 per 1,000, the rates varying from 0·0 in nine of the districts to 10·2 in Sligo—the 4 deaths from all causes registered in that district comprising 1 from measles and 1 from ill-defined fever. Among the 88 deaths from all causes registered in Belfast are 3 from measles, 1 from scarlatina, 2 from whooping-cough, 2 from diphtheria, 2 from simple continued and ill-defined fever, 4 from enteric fever, and 2 from diarrhœa. Among the 25 deaths in Cork are 2 from scarlatina and 1 from whooping-cough, and the 18 deaths in Limerick comprise 2 from scarlatina.

In the Dublin Registration District the registered births amounted to 182—109 boys and 73 girls; and the registered deaths to 134—65 males and 69 females.

The deaths, which are 12 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·0 in every 1,000 of the population. Omitting the deaths (numbering 3) of persons admitted into public institutions from localities outside the district, the rate was 19·5 per 1,000. During the first thirty-one weeks of the current year the death-rate averaged 26·1, and was 2·2 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 14, being 1 over the low number for the preceding week, but 11 under the average for the thirty-first week of the last ten years. The 14 deaths comprised 1 from small-pox, 2 from scarlet fever (scarlatina), 1 from typhus, 1 from ill-defined fever, 1 from enteric fever, and 7 from diarrhœa. The death from small-pox was that of a male infant, five months old, who had not been vaccinated.

Nine cases of small-pox were admitted to hospital against 4 admissions in the preceding week: 7 small-pox patients were discharged, 1 died, and 22 remained under treatment on Saturday, being 1 over the number in hospital on Saturday, July 28.

Fifteen cases of enteric fever were admitted to hospital, being 4 over the admissions in the preceding week, but 1 under the number in the week ended July 21. Six patients were discharged, 1 died, and 75 remained under treatment on Saturday, being 8 over the number in hospital on the previous Saturday.

The hospital admissions for the week included, also, 21 cases of scarlatina. This number is 17 in excess of the admissions for the preceding week and 8 over the number for the week ended July 21. Five scarlatina patients were discharged, 2 died, and 55 remained under treatment on Saturday, being 14 over the number in hospital at the close of the preceding week.

Seventeen deaths from diseases of the respiratory system were registered, being 1 over the average for the corresponding week of the last ten years, and also 1 over the number for the week ended July 28. They comprise 11 from bronchitis and 3 from pneumonia or inflammation of the lungs.

In the week ending Saturday, August 11, the mortality in thirty-three large English towns, including London (in which the rate was 17·4), was equal to an average annual death-rate of 17·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·6 per 1,000. In Glasgow the rate was 14·6, and in Edinburgh it was 17·9.

The average annual death-rate in the sixteen principal town districts of Ireland was 18·0 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in eleven of the districts to 4·3 in Lisburn—the 4 deaths from all causes registered in that district comprising 1 from diarrhœa. Among the 104 deaths from all causes registered in Belfast are 2 from measles, 3 from whooping-cough, 6 from enteric fever, and 6 from diarrhœa. The 36 deaths in Cork comprise 2 from measles.

In the Dublin Registration District the registered births amounted to 163—84 boys and 79 girls; and the registered deaths to 124—56 males and 68 females.

The deaths, which are 32 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 18·5 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 17·5 per 1,000. During the first thirty-two weeks of the current year the death-rate averaged 25·9, and was 2·3 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 20, being 6 over the number for the preceding week, but 7 under the average for the 32nd week of the last ten years. The 20 deaths comprise 1 from small-pox, 1 from whooping-cough, 1 from ill-defined fever, 2 from enteric fever, and 8 from diarrhœa. The death from small-pox was that of a girl aged four years, who had not been vaccinated.

Twenty-six cases of small-pox were admitted to hospital, being 17 in excess of the admissions for the preceding week: 3 small-pox patients were discharged, 1 died, and 44 remained under treatment on Saturday, being 22 over the number in hospital on Saturday, August 4.

The number of cases of enteric fever admitted to hospital was 15, being equal to the admissions for the preceding week: 14 patients were discharged, and 76 remained under treatment on Saturday, being 1 over the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 14 cases of scarlatina (a decline of 7 as compared with the number of cases of that disease admitted during the preceding week) and 3 cases of typhus. Eight scarlatina patients were discharged, and 61 remained under treatment on Saturday, being 6 over the number in hospital on Saturday, August 4. The 3 cases of typhus admitted during the week were the only cases of that disease in hospital on Saturday.

The number of deaths from diseases of the respiratory system registered is 13, being 4 below the average for the corresponding week of the last ten years and also 4 under the number for the week ended August 4. The 13 deaths comprise 6 from bronchitis and 5 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15 *W., for the Month of July,* 1894.

Mean Height of Barometer,	29·853 inches.
Maximal Height of Barometer (on 1st, at 9 a.m.),	30·211 „
Minimal Height of Barometer (on 11th, at 9 p.m.),	29·309 „
Mean Dry-bulb Temperature,	59·1°.
Mean Wet-bulb Temperature,	56·2°.
Mean Dew-point Temperature,	53·6°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·411 inch.
Mean Humidity,	82·8 per cent.
Highest Temperature in Shade (on 1st),	75·7°.
Lowest Temperature in Shade (on 23rd),	48·3°.
Lowest Temperature on Grass (Radiation) (on 22nd)	43·4°.
Mean Amount of Cloud,	66·3 per cent.
Rainfall (on 21 days),	3·772 inches.
Greatest Daily Rainfall (on 24th),	1·560 inches.
General Directions of Wind,	W., N.W., S.W., E.S.E.

Remarks.

A very changeable, showery, and thundery, but tolerably warm month, of average mean temperature but considerable rainfall, with a decided prevalence of winds from westerly points—W., N.W., and S.W.; but easterly winds towards the close.

In Dublin the arithmetical mean temperature (60·3°) was slightly below the average (60·6°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 59·1°. In the twenty-nine years ending with 1893, July was coldest in 1879 ("the cold year") (M. T. = 57·2°). It was warmest in 1887 (M. T. = 63·7°), and in 1868 (the "warm year") (M. T. = 63·5°). In 1886 the M. T. was 61·0°; in 1888 it was as low as 57·3°; in 1889, it was 58·7; in 1890, 58·1°; in 1891, 59·0°; in 1892, 57·8°; and in 1893, 61·6°. From this, July, 1887, proves to have been the warmest since the present records commenced, whilst July, 1879, was the coldest. In only 2 years since 1864 was July colder than in 1892.

The mean height of the barometer was 29·853 inches, or 0·062 inch below the corrected average value for July—namely, 29·915 inches. The mercury marked 30·211 inches at 9 a.m. of the 1st, and fell to 29·309 inches at 9 p.m. of the 11th. The observed range of atmospherical pressure was, therefore, 0·902 inch—that is, a little more than nine-tenths of an inch.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 59·1°, or 2·7° above the value for June, 1894. Using the formula, *Mean Temp.* = *Min.* + (*max.* — *min.* × ·465), the value was 59·8°, or 0·4° below the average mean temperature for July, calculated in the same way, in the twenty-five years, 1865–89, inclusive (60·2°). The arithmetical mean of the maximal and minimal readings was 60·3°, compared with a twenty-five years' average of 60·6°. On the 1st the thermometer in the screen rose to 75·7°—wind, S.E.; on the 23rd the temperature fell to 48·3°—wind, N. The minimum on the grass was 43·4° on the 22nd.

The rainfall was 3·772 inches, distributed over 21 days. The average rainfall for July in the twenty-five years, 1865–89, inclusive, was 2·420 inches, and the average number of rainy days was 17·2. The rainfall, therefore, was considerably above the average, while the rainy days were also much above it. In 1880 the rainfall in July was very large—6·087 inches on 24 days; in 1871 also 4·391 inches fell on 28 days. On the other hand, in 1870, only ·539 inch was measured on 8 days; in 1869 the fall was only ·739 inch on 9 days; and in 1868 only ·741 inch fell on but 5 days. In 1892, 1·952 inches fell on 12 days, and in 1893, 2·042 inches on 14 days.

High winds were noted on 7 days, but attained the force of a gale on only one occasion—the 18th. Temperature reached or exceeded 70° in the screen on only 3 days. In July, 1887, temperature reached or exceeded 70° in the screen on no fewer than 17 days. In July, 1888, the maximum was only 68·7°. In July, 1891, maxima of 70° were reached on only 3 days, and in July, 1892, on only 2 days; but in 1893, 70° was reached on 8 days. Electrical disturbances were frequent. A severe thunderstorm occurred on the night of the 25th–26th, when also hail fell. Thunder was also heard on the 1st, 7th, 20th, and 24th, while lightning was seen on the 1st, 24th and 25th. A parhelion appeared on the evening of the 25th.

The weather of the week ended Saturday, the 7th, while generally warm and summerlike, was unsettled, particularly in Ireland and Scotland, where rain fell heavily at times. Sunday was an unusually hot day—the thermometer in the shade rose to 87° at Cambridge, 83° at Oxford, Loughborough, and even Holyhead, 82° in London, 81° at Liverpool, 80° at York, Hurst Castle, and Belmullet, 79° at Parsonstown, 78° at Ardrossan, and 76° in Dublin. In the evening thunderstorms prevailed in St. George's Channel and over the Irish Sea, as well as at Jersey, where 1·10 inches of rain fell. Off the coasts of Wicklow and Dublin thunder was frequently heard between 6 and 8 p.m., and lightning flashed from splendid storm-clouds after dusk. After a dull spell on Monday, the weather again became fair for a time, but on Wednesday a considerable fall of rain occurred in the S., W., and N. of Ireland—the measurement at Valentia Island was 1·42 inches. At that station 1·43 inches again fell on Thursday, a total fall of 2·85 inches in 48 hours. On Friday the rainfall was renewed in Ireland and a thunderstorm depression passed over England. At 8 a.m. of this day the thermometer stood as high as 74° in London, where the maximum proved to be 85°. Saturday was much cooler, but very changeable, with heavy local thundershowers. Thunder was heard to the eastward of Dublin at 2 and again at 3 p.m. The evening proved fair, but cold. In Dublin the mean atmospheric pressure during the week was 30·036 inches, the barometer being seen to range from 30·211 inches at 9 a.m. of Sunday (wind, E.S.E.), to 29·791 inches at 6 p.m. of Friday (wind, W.S.W.). The corrected mean temperature was 62·1°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 61·0°. On Sunday the screened thermometers rose to 75·7°. On Saturday they fell to 50·7°. The rainfall was ·417 inch on five days, ·202 inch being measured on Friday. The prevailing wind was S.W. Thunder was heard on Sunday and Saturday.

The weather remained in a very unsettled, showery state throughout the week ended Saturday, the 14th. The type of distribution of atmospheric pressure was cyclonic, and at one time—on Thursday morning—the barometer was as low as 29·00 inches off the S.W. coast of Norway. Owing to frequent rain and the clouded state of the sky no very high temperatures were recorded at any British or Irish station. On the Continent, however, it was very hot at times—at Perpignan the thermometer rose to 91° on Monday and to 90° on Tuesday. The most striking episode in the history of the week's weather was the erratic course pursued by an extensive and deep depression, which lay near the Scilly Isles at 8 a.m. of Tuesday. This disturbance first travelled southeastwards to Brittany, thence northeastwards to the North Sea off the Dutch coast.

reaching this position by 8 a.m. of Wednesday after causing a downpour of rain on both sides of the English Channel—1·64 inches were measured at Jersey, 1·46 inches in London, and 1·22 inches at Cap Griz Nez on Wednesday morning. By 6 p.m. of this day the centre of the depression, which had become much deeper, touched the Danish coast near Fanö. Next morning it was off the extreme southwestern part of Norway, having again changed its course. Twenty-four hours later it was found over Caithness, torrents of rain having fallen in the North of Scotland as it approached. On Saturday this curious system was rapidly filling up. In Dublin the mean height of the barometer was only 29·584 inches, or as much as ·452 inch below the corresponding value for the previous week. The highest recorded pressure was 29·974 inches at 9 a.m. of Sunday (wind, W. by S.), the lowest was 29·309 inches at 9 p.m. of Wednesday (wind, S.W.). The corrected mean temperature was 58·2°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 57·3°. On Friday the screened thermometers rose to 67·7°, on Thursday they fell to 50·9°. Rain fell daily to the total amount of ·745 inch, ·309 inch being measured on Wednesday, when ·610 inch fell at Greystones—·560 inch in one or two heavy showers. The prevalent wind was westerly.

Unsettled, showery, squally, cool—such was the weather of the week ended Saturday, the 21st. A tongue of relatively high pressure was found on most days stretching across France and Germany in an east-north-easterly direction, but a series of depressions—some of considerable size—continued to pass over the northern half of the British Isles, the North Sea, and Scandinavia from W. to E., or from W.S.W. to E.N.E. Hence the changeable weather of the period. Sunday was tolerably fine after a showery morning; but at night a new depression caused a considerable rainfall, which on Monday extended to Great Britain. On Tuesday gradients for westerly winds were steep over Ireland and England, and the wind became strong to a moderate gale at exposed stations. In Scotland neither was the barometric gradient steep nor was the wind high, but a heavy downpour of rain occurred—1·08 inches being registered at Aberdeen, 1 inch at Stornoway, and 0·9 inch at Wick on Wednesday morning. On Friday heavy thunder showers occurred to the southward of Dublin, but both on that day and again on Saturday intervals of hot sunshine were enjoyed in the city itself. In Dublin the mean height of the barometer was 29·770 inches, pressure ranging between 29·922 inches at 9 a.m. of Sunday (wind, N.W.) and 29·643 inches at 9 a.m. of Wednesday (wind, N.W. by W.). The corrected mean temperature was 59·2°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 57·8°. On Saturday the screened thermometers rose to 68·6°. The minimum was 52·0° on Wednesday and Saturday. Rain measured ·341 inch on five days—·118 inch falling on both Sunday and Wednesday. The prevailing wind was W.N.W.

During the week ended Saturday, the 28th, the weather was in an unsettled, thundery state until Thursday, when a fine, summerlike spell set in, lasting to the close of the week. All through the period an area of high atmospheric pressure—at first of feeble, afterwards of greater intensity—lay over Norway and the adjoining Norwegian Sea. But in the British Islands the distribution of pressure conformed to the cyclonic rather than the anticyclonic type. On Sunday an irregular depression passed eastwards across the south of Ireland to the south of England, over which district it caused heavy rains on Sunday night and Monday morning—·68 inch at Cambridge, ·77 inch at Oxford, ·85 inch in the Scilly Islands, and ·98 inch at Prawle Point, in Devon. Near Dublin, beautiful weather prevailed at this time, but rainclouds were seen on the far southern horizon. During the following three days a large, and irregular though shallow depression travelled slowly northwestwards from the Bay of Biscay to Ireland, being still perceptible off the coasts of Cork and Kerry on Saturday morning. This system caused downpours of rain and severe thunderstorms in many places. On Tuesday night, 1·27 inches of rain fell at Greystones, Co. Wicklow; 1·56 inches in Dublin; 1·67 inches at Glasnevin, North Dublin, and 1·85 inches at the Ordnance Survey Office, Phœnix Park. On Wednesday night and early on Thursday morning a violent thunderstorm passed over the Counties of Dublin and Wicklow from S.E. towards N.W. Rain and hail fell in large quantities, and the lightning was frequent and most vivid. On Thursday forenoon the weather cleared, remaining bright and warm, with S.E. winds, to the end of the week. In Dublin the mean atmospheric pressure was 29·967 inches, the barometer oscillating between 29·874 inches, at 9 p.m. of Thursday (wind, E.S.E.), and 30·125 inches at 9 a.m. of Tuesday (wind, N.E.). The corrected mean temperature was 59·2°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 59·0°. On Saturday the screened thermometers rose to 68·7°, having fallen to 48·3° on Monday. The rainfall was as much as 2·145 inches on three days—1·560 inches being recorded on Tuesday. The prevailing winds were N.E. and S.E. On Tuesday the thermometer rose to 95° in the shade at Berlin.

The last three days of the month were in unison with the prevailing characters of July, 1894—changeable, but fairly warm and summerlike. On Sunday, the 29th, a thunderstorm depression lay over the English Channel, the South of England, and South Wales. In Dublin, gloomy, damp weather held, but there were severe thunderstorms along the shores of the English Channel. Monday was warm and brilliant. On Tuesday, the 31st, a new area of low pressure advanced over Ireland from the Atlantic, causing clouds and heavy rain at times.

The rainfall in Dublin during the seven months ending July 31st amounted to 18·133 inches on 130 days, compared with 11·666 inches on

92 days in the corresponding period of 1893, 13·722 inches on 109 days in 1892, 10·935 inches on 92 days in 1891, 15·587 inches on 118 days in 1890, 13·146 inches on 112 days in 1889, 15·994 inches on 109 days in 1888, 7·935 inches on 80 days in 1887, and a twenty-five years' average of 14·733 inches on 112·6 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in July was 3·805 inches on 19 days, compared with 1·290 inches on 15 days in 1893, 2·925 inches on only 10 days in 1892, 1·325 inches on 18 days in 1891, and 1·489 inches, distributed over 18 days, in 1890. Of the total rainfall 1·270 inches fell on the 24th and ·640 inch on the 25th. The total fall since January 1 has been 21·186 inches on 115 days, compared with 13·066 inches on 90 days in 1893, and 16·708 inches on 90 days in 1892.

At Cloneevin, Killiney, Co. Dublin, the rainfall in July was 4·08 inches on 23 days, compared with a nine years' average of 1·807 inches on 15 days. On the 24th the rainfall was 1·17 inches. Since January 1, 1894, 18·20 inches of rain have fallen on 128 days at this station (Cloneevin).

The July rainfall now recorded has been exceeded at Cloneevin only in 1888, when it was 4·09 inches on 22 days.

HYPNOTISM IN ALCOHOLISM.

G. E. Bushnell, M.D., gives (*Medical News* of Philadelphia, March 31st, 1894) a series of cases of alcoholism treated by hypnotic suggestion. He notes:—"It is an interesting fact that, while it is easy to render whiskey repugnant to the senses of the patient, it appears to be impossible to accomplish this in the case of beer by any number of suggestions. The loss of tolerance and the cessation of cravings for alcohol are reached, however, with as great certainty in the one class of drinkers as in the other."

ALCOHOL IN SURGERY.

Dr. Victor Horsley, F.R.S., F.R.C.S., in the *Medical Pioneer* for July, 1894, discusses the use of alcohol in surgical practice, and sums up:—"In surgery at least there can be no doubt that alcohol will be used less and less often as a remedial agent, partly because scientific investigation has shown the causes of many of the evils it was imagined to counteract, and because, thanks to Sir Joseph Lister, those causes have been got rid of, but also because closer investigation of its effects on the body have exhibited its disadvantages in a stronger light. Such a prospect surely warrants us in feeling a certain sense of congratulation, since of all the drugs that we are acquainted with that has a general or social use as well as a professional one alcohol is the most prominent, and, for the matter of that, the most dangerous."

PERISCOPE.

BRITISH MEDICAL SERVICE.

The following is the official list of surgeons on probation of the medical staff of the British Army who were successful at both the London and Netley examinations. The prizes are awarded for marks gained in the special subjects taught at the Army Medical School. The final positions of these gentlemen are determined by the marks gained in London added to those gained at Netley, and the combined numbers are accordingly shown in the list which follows:—

July 30th, 1894.

	Combined Marks		Combined Marks
[a]1. Evans, P. - - -	5,400	6. Buist, J. M. - -	4,576
[b]2. Milner, A. E. - -	4,734	7. Walker, J. - -	4,446
3. Morgan, C. K. - -	4,666	8. Dove, F. - -	4,340
4. Silver, J. P. - -	4,633	9. Thom, G. St. G. -	4,207
5. Vaughan-Williams, H.	4,596	10. Sweetnam, S. W. -	3,940

ARMY MEDICAL STAFF.

The Director-General of the Army Medical Department has forwarded the following official list of successful candidates for commissions in the Medical Staff of her Majesty's Army at the recent competitive examination in London:—

Order of Merit	Names	Marks	Order of Merit	Names	Marks
1	Howell, H. A. L. -	2,445	7	Profeit, C. W. -	2,075
2	Lawson, D. - -	2,270	8	Whitehead, J. H. -	2,013
3	Harrison, W. S. -	2,260	9	Tomlinson, L. P. -	1,999
4	Steel, E. B. - -	2,178	10	Kiddle, F. - -	1,986
5	Perry, S. J. C. P. -	2,168	11	Murison, J. A. -	1,978
6	Haddon, H. E. -	2,088	12	Heaton, A. F. -	1,940

INVERTED VISION.

The *Journal of the American Medical Association* quotes a remarkable passage from Dr. Cook's papers on the Peary North Greenland Expedition, of which he was naturalist. A native to whom he gave a picture hung it on the wall of his hut *upside down*. Other natives, without exception, having never before seen book, picture, or written paper, inverted pictures for examination. They readily made drawings (as of a polar bear), but these were inverted. Dr. Cook thinks that "these natives in their infancy of civilisation have not been educated, as we have, by a long series of training and probably heredity, to read pictures as they would natural objects, but instead they hold the picture upside down, so that the image will be transmitted to their retinas in a reverse position." In Labrador the same peculiarity, but in a less degree, was observed among mountain Indians; "and later still he has seen a number of young persons in civilised countries, who have not yet been taught the art of picture-reading, who have a manifest tendency to hold their pictures upside down."

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[a] Gained the Montefiore medal and prize of 20 guineas, and the de Chaumont prize in hygiene.

[b] Gained the Montefiore second prize.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Bisquit's Old Liqueur Brandy.

It is curious to compare, from a philological standpoint, the words used to express "Brandy" by our immediate Continental neighbours. The "Branntwein," or "burnt wine," of the Germans is the "Eau de vie" of the French. And, indeed, *good* Cognac is well named "water of life," for many a time and oft its judicious administration has saved life. On the other hand, the abuse of good brandy and the use of bad brandy are alike inimical to health and even to life. Messrs. Bisquit, Dubouché, and Co. have submitted to us a sample of brandy, which may well be called "Eau de vie." It is guaranteed to have been more than twenty years old when it was bottled at Cognac, and it is described as having been distilled from pure Charente wine. So far as a personal trial of "Bisquit's Old Liqueur Brandy" enables us to judge, it is a pure, soft, aged Cognac, of delicate flavour and agreeable aroma. It is a sound brandy, possessing valuable dietetic properties. In sickness it will doubtless prove a valuable stimulant, whilst in robust health it may on occasion serve the purpose of a wholesome, appetising stomachic. It costs six shillings a bottle, but is worth paying for.

The Cocaïn Spray.

Messrs. Burroughs, Wellcome & Co., Snow Hill Buildings, London, E.C., have placed in our hands the cocaïn spray apparatus suggested by Dr. Willoughby. It is neatly packed in a small box, together with a glass tube containing forty-eight quarter-grain cocaïn "tabloids." One or more of these is to be dissolved in sufficient water to fill the spray apparatus—a bent glass tube with an Indian-rubber compressible bulb at the distal end. By squeezing this between the thumb and first finger, the solution is caused to pass into the nostrils, in accordance with the instructions given by the physician. The solution is made in a little glass mortar, the tabloids being crushed by means of a miniature glass pestle—so that the apparatus is wonderfully complete. It is so small as to be easily carried in the waistcoat pocket.

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THE DUBLIN JOURNAL

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MEDICAL SCIENCE.

OCTOBER 1, 1894.

PART I.

ORIGINAL COMMUNICATIONS.

◆

ART. XII.—*Two Cases of Hydrocephalus, associated with complete absence of communication between the Fourth Ventricle and the Subarachnoid Space.*[a] By JOSEPH O'CARROLL, M.D., F.R.C.P.I.; Physician to the Richmond, Whitworth, and Hardwicke Hospitals, and to the Children's Hospital, Dublin.

BEFORE entering on the description of the brains which I show to the Section, it may be well to recall the fact that, under ordinary circumstances, the arachnoid membrane is separated from the pia mater opposite all the considerable depressions in the brain-cortex, by a space called the subarachnoid space; further, that this space is in communication with the cerebral ventricles at certain points at which the cerebro-spinal fluid can flow outwards into the space, or possibly in the reverse direction, should the pressure bear that way. Now the largest gap between the arachnoid and pia mater is at the interval between the cerebellum and the medulla—the so-called *cisterna cerebello-medullaris*—and this space is continuous below with the great subarachnoid cavity around the spinal cord, while above it communicates by foramina in the curtain of pia mater covering the lower part of the roof of the fourth ventricle, with that ventricle, and, consequently, with the general ventricular cavity of the brain. These foramina are the central one of Magendie and the two lateral ones described by Mierzejewski.

---

[a] Read before the Section of Pathology, in the Royal Academy of Medicine in Ireland.

If we assume, with regard to the cerebro-spinal fluid, that the main physiological condition is one of ventricular secretion and arachnoid resorption or excretion, we shall have then, on the whole, a tide outwards through these foramina, and we must suppose that occlusion of the communications of the ventricles with the subarachnoid space must tend to produce a condition of retention of fluid within the ventricles, and a consequent dilatation of them. This dilatation will be considerable in proportion as the parts are yielding, as in infancy and childhood, or as the other modes of communication between the ventricles and the subarachnoid space are less developed or less capable of compensatory activity.

I shall now describe two cases in which the pia-arachnoid cavity between the cerebellum and the medulla oblongata was obliterated, and the posterior openings of the ventricular cavity were absent:—

CASE I.—A boy, aged thirteen years and six months, of healthy family. Head normal at birth; at nine months "he slept for two days and two nights continuously, and was constantly crying for six weeks afterwards." The head began to grow large at that time, and increased in size for about six years. For the past two years he has had frequent headaches and retching, especially in the morning before eating. Has never walked, but crept about on all-fours.

When admitted to hospital for the headache and retching, the following conditions were noted—Circumference of head, 66 cm. (26 inches); legs completely flexible, but only extensible to about 150 or 160 degrees; hands and feet chubby and small; right leg better developed than left, and right knee has a great thick soft pad over it, covered with thickened skin. The dorsum of each foot and the palms of the hands have coarse callosities on them. These conditions are plainly due to the creeping posture, which has been habitual with him. The reflexes, generally, are rather sharpened. Sensation is normal. Is able to sit up in bed; talks intelligently, but has no education. Lies frequently on his face, and complains often of headache. Eight days after admission—at 6 a.m. he vomited; at 7 30 he sang a song, sitting up in bed; at 8 a.m. he fell back suddenly and died.

At the *post-mortem* examination no cause was found for the suddenness of death. The head seemed unduly movable on the trunk, but no sign of fracture, dislocation, or compression of the spinal cord could be found. The skull and brain were unsymmetrical, the left side being much longer than the right. The skull bones were thin and translucent, with little or no cancellous tissue. The brain was distended in the manner common in these cases—that is to say, the lateral and third ventricles formed one large cavity, hardly showing a trace even of the median division caused by the longitudinal fissure. The corpus callosum hardly existed in the middle line, except, perhaps, as a very thin lining to the pia mater in front and behind. The Sylvian aqueduct was almost cylindrical, about 2 mm. in diameter. The fourth ventricle, which suffers much less in cases of hydrocephalus than do the other ventricles—probably on account of the resistance of the cerebellum, the medulla, and the bony posterior fossa and the tentorium—was enlarged to about the size of a large almond, while a prolongation of it extended into the cerebellum to a distance of 3·5 cm. The ventricle was perfectly closed behind by a membrane binding the cerebellum down to the medulla oblongata, this membrane being quite unlike the layer of arachnoid ordinarily present in this situation, inasmuch as it was formed by a fusion of the pia with the arachnoid into a rigid imperforate curtain between 3 and 4 mm. thick, and about 2 mm. in vertical length. There was here no cisterna cerebello-medullaris and no foramen of Magendie, and the membrane was so thick as to oppose filtration outwards from the ventricles, unless under much increased pressure.

Case II.—A girl, aged four years, had had an abnormally large head from infancy, but her birth had been normal, and the abnormal growth of the head was not noticed till she was about nine months old.

On admission, head measured in fronto-occipital plane 60 cm., or 23½ inches. She died at the close of an attack of measles, by the supervention of bullæ on the legs and feet, rapidly forming bed-sores, and broncho-pneumonia.

Post mortem.—The brain presented a condition of excavation almost exactly like that found in Case I. As in that case the cerebellum was bound down to the medulla, but here by a close dense adhesion, and not a measurable membrane. There were no apertures of communication whatsoever between the fourth ventricle and the outside, and no remnant of a subarachnoid space between the medulla and the cerebellum. In addition, the temporo-sphenoidal lobe was bound apparently by old adhesive inflammation to the neighbouring parts of the brain, a condition which may hint at the origin of the cerebello-medullary adhesion in a meningitis of uterine or infantile life.

In these two cases, then, hydrocephalus was associated with closure of the normal apertures of communication between the fourth ventricle and the subarachnoid space; in both, probably, as the result of an original adhesive lepto-meningitis. It is to draw attention to this condition, as a cause of hydrocephalus, that I have brought forward these specimens. The other causes offered for hydrocephalus group themselves practically into (*a*) an inflammation of the lining layer of the ventricles and of the choroidal plexuses within them, resulting in effusion or excessive secretion; and (*b*) pressure upon the efferent veins from the ventricles as by any form of tumour—a condition mainly described as occurring in relation to the veins of Galen and the straight sinus. The condition present in my cases is in nowise inconsistent with the conditions under (*a*); it may well be that an ependymitis and choroiditis interna were in one or both of these cases conjoined originally with the meningeal affection, which resulted in occlusion of the fourth ventricle, but of this internal inflammation no marked signs persisted.

ART. XIII.—*Case of Locomotor Ataxy, with Specimen of Charcot's Disease.*[a] By G. P. L. NUGENT, M.D., F.R.C.P.I.

THE case which I now bring forward is that of a man, J. B., aged 49, an army pensioner, who was admitted to the Whitworth Hospital on December 28th, 1892, complaining of swelling in his right knee and general difficulty of walking.

He gives a history of having had a spear wound in his right side in 1865, while fighting in New Zealand, and afterwards, about four years ago, got hurt in the same side while fencing. Necrosis of a small portion of a rib was the result, and then he completely recovered after some small operation in hospital.

His father and mother died at an advanced age, about 70, and an uncle died of some form of paralysis. He admits to no history of syphilis, or excess of any sort.

About three years ago the patient noticed a weakness in his left knee, which caused him some unsteadiness in gait, but otherwise he was all right. About four months after this a weakness of the calf of his left leg set in, accompanied by severe pains, which resembled the shock from an electric battery. These pains were intermittent in character, lasting off and on for about 24 hours, and were confined to the calf of the same leg. He also complained of a tightness in his abdomen, as if he was encircled by a cord; his bowels were confined, his urine occasionally dribbled away involuntarily, and he also got slightly deaf.

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[a] Read before the Section of Pathology, in the Royal Academy of Medicine in Ireland, on Friday, January 5, 1894. [For the discussion on this Paper, see Vol. XCVII., page 451.]

Twelve months after this his right leg became affected in a similar manner to his left, but then for a time he appeared to improve.

A few months subsequently he got spasmodic fits of "choking," occurring a few times a day, and then he would be free from them for a week or so. These fits commenced with a tickling sensation, starting from the pit of his stomach.

A year before his admission he had an attack of facial paralysis on the right side. He was unable to frown or shut his right eye, which watered profusely; he was also unable to whistle, and his mouth was drawn up to the left side.

Eight or nine months after this he got a fall off a vehicle, striking his right knee against the ground, and at that time he felt "something give." The knee rapidly swelled, but was comparatively painless. It increased and diminished in size from time to time, and in about a month after the accident it began to bend backwards. After some weeks he went to the Richmond Hospital, and his disease being recognised by my colleague, Mr. Thomson, he was transferred to the Whitworth Hospital.

The notes of his case on admission are as follows:—

The patient is a tall, gaunt, dark-complexioned man of a very discontented expression, and shows signs of old right facial paralysis. His weight is 10st. 8lb., and he says he was 12st. 7lb. some years ago.

His voice is considerably impaired owing to partial paralysis of the adductor muscles chiefly, and his speech is also thick and sometimes understood with difficulty, owing, apparently, to impaired tongue movements, and while in hospital subsequently he had several attacks of laryngeal dyspnœa. His pupils are markedly myotic, the Argyll-Robertson phenomenon well developed, and both upper lids droop, at one time more than another; he has no colour blindness or diplopia.

He suffers much from constipation and occasionally severe pains in the stomach, but never, while under observation, had what could be described as a gastric crisis.

As regards his method of locomotion, this is considerably modified by the condition of his knee.

He can only progress with extreme slowness and with the aid of two sticks, stooping forward, and when he rests the weight of his body on his right leg the retroflexion of the right knee is such as to cause apprehension of the condyles of his femur bursting through the skin. (The photographs exhibited to the Academy did not give a full idea of this condition, as they were taken when he was to a considerable extent supported.)

The knee-jerks are lost and plantar reflexes diminished.

His ordinary sensation is diminished, and that to a smart prick of a needle distinctly delayed. He complains of slight parӕthesiӕ, such as tingling, &c., but not to any great degree, and allocheiria, though sometimes to be observed, is not a prominent symptom.

As regards his urinary system, he has to pass water frequently, rising often at night, and occasionally has slight incontinence, his urine is alkaline, contains large quantities of pus, and occasionally a little blood.

The condition I have briefly described remained much the same during his five months' residence in hospital until about three weeks before his death. His bladder symptoms then rapidly became worse, he positively refused to have anything done for him, such as the washing out of the organ and other treatment to which he had previously submitted, and he gradually sank and died on April 11, 1893.

In addition to what I have stated with regard to the condition of his knee joint during locomotion, I may say that the veins over the joint were considerably distended, and that in circumference it measured at times 4 or 5 inches more than that of the opposite side. After rest in bed for some days this increase in size, which was obviously due chiefly to fluid effusion, gradually subsided, and then some grating could be felt, but only with difficulty developed. The articular ends of the tibia and fibula appeared to be enlarged. The right elbow joint also appeared to be somewhat enlarged, the olecranon standing out prominently.

The *post-mortem* examination revealed the condition of the knee joint to be now described.

Muscles.—The muscles in the neighbourhood of the joint are all well developed, especially the plantaris.

Capsule.—The capsule is greatly thickened, especially on either side of the ligamentum patellӕ.

Ligaments.—The external lateral ligament is rather thickened, but the internal appears normal.

Joint cavity.—On the joint being opened the synovial membrane is found to be much thickened, both the part covering the non-articular surface of the bone and that lining the capsule. Numerous little bands pass across the angle of reflection. Small pedunculated bodies hard to the touch project into the joint cavity. In the neighbourhood of the patella the membrane is roughened and has a warty appearance consisting of small pedunculated bodies. A large tough fringe projects for about half an inch into the interval between the lower end of the femur and upper end of the tibia.

Lower end of Femur.—The lower end of the femur is enlarged. The cartilage which should cover the articular surface is in parts eroded, and the eburnated bone shines through. The margin of the articular surface above projects abruptly and is irregular and lipped, and overhangs the non-articular surface of the femur. On the lower portion of the condyles the cartilage is also partially eroded, and there are elastic elevations projecting from the non-eroded surface.

Posterior surface of Joint.—On looking at the posterior surface of the joint synovial fringes are seen overlapping the condyles, the cartilage covering the condyles is eroded in places, and irregular bony outgrowths project from the upper part of the condyles. The capsule of the joint over the outer condyle is greatly thickened, and over the internal condyle the bursa under the inner head of the gastrocnemius communicates with the joint.

Patella.—The patella is transversely enlarged and slightly diminished in size from above downwards, the cartilage covering it is eroded, and the same bony lip projects from its upper border as in the case of the femur.

Upper end of Tibia.—The upper end of the tibia is enlarged. The cartilage on the upper surface is eroded in a similar manner to the condyles of the femur, and bony outgrowths project from the anterior space between the tuberosities. The transverse ligament is well developed and clearly seen, the anterior crucial ligament has practically disappeared, but the posterior one has only partially done so, the synovial membrane covering these is thickened and fringed. The semilunar cartilages, however, appear normal.

I would wish to say a few words with regard to the history of the disease.

In 1868 Professor Charcot first drew attention to the arthropathy occurring in locomotor ataxy, and gave as its chief points, considerable hydroarthrosis and a diffused swelling extending beyond the joint, of hard consistence, and not presenting the ordinary features of œdema. It was not accompanied by fever or pain generally, was sudden in its accession, and might cause irremediable destruction of a joint in days or weeks. Sometimes the swelling would disappear and the joint return to its original condition, but frequently there was rapid absorption of the articular extremities.

In 1869 Dr. Ball, Professor at the Paris Faculty of Medicine, gave particulars of 18 cases occurring in different joints, but especially in the knee.

He draws particular attention to the rapid development of hydroarthrosis and the absence of inflammatory action, and in pointing out the different features to be found in chronic rheumatic arthritis he states that the progress of the atrophic process is much more active in the spinal form, and that in chronic arthritis there exist a flattening and augmentation in the size of the articular surfaces not to be found in spinal arthropathy, that the lesions in the hard parts in the neighbourhood of the affected joints are best expressed by the opposing terms hypertrophy and atrophy, especially when the affection attacks the knee-joint. While the volume of the bones, as well as the transverse diameter of the patella, undergo a manifest increase in size, while the femur and tibia become the seat of voluminous abnormal development, the articular extremities become rapidly atrophied, as is shown by their partial dislocations and their præternatural mobility.

The occurrence of spontaneous fractures having been brought forward in 1873, Charcot makes the following statement:—The fault of nutrition due to an influence of the nervous system, which makes the bones fragile and thus leads to spontaneous fracture, pro-is also one of the principal elements which combine to the duction of the arthropathies. The extremely rapid and extensive wearing away of the articular extremities is the principal character which distinguishes ataxic arthropathy from common dry arthritis.

Talamon states—Destruction and disappearance, partial or complete, of the epiphyses, fragmentation and absorption of the head of the humerus in one case and atrophy of the projecting portions, such are the principal and always identical alterations of the osseous extremities that have been met with in the shoulder, hip, and knee. In no case have there been observed the hyperostoses, and epiphysial hypertrophies which characterise dry arthritis.

The connection between arthropathies and disease of the spinal cord is not yet explained. The presence of disease of the anterior cornua has not been proved, and a number of German pathologists were inclined to believe them to be the result of anæsthesia interfering with voluntary and automatic joint protection.

In November, 1884, Dr. Morrant Baker read details of three cases of joint disease in connection with locomotor ataxy before the Clinical Society of London, and the matter was there very fully discussed.

Dr. Baker started the discussion as to whether this disease was a new disease or one long known as chronic rheumatic arthritis, and if so, what was the connection between arthritic disease and locomotor ataxy. He believed that arthritis deformans was characterised by the same anatomical and pathological lesions as those met with in Charcot's disease—viz., eburnation, osteophytes, and fibrous degeneration of cartilage, with wearing away of bone, &c. He looked on the two diseases as not cause and effect, but dependent upon some pre-existing depraved condition common to both, of which the effects are seen most clearly, sometimes in disease of the nervous system with its direct consequences, sometimes in disease of the joints, sometimes in both.

The general result of the discussion was in favour of the opinion that the joint affection arose from the same cause which underlies the more simple symptoms of the nervous disease, and as arguments in favour of this was adduced the fact that the changes in the texture of the bones, such as softness and fragility, frequently accompanied the changes in the joints, and that the latter in many cases corresponded in time with other trophic changes and lancinating pains.

In this discussion Hutchinson and Moxon opposed the view of Charcot as to the direct trophic influence of the nervous system, and the former was inclined to refer the joint disease to the dulness of sensation, which he believed to be the chief cause of perforating ulcer of the foot without referring to the trophic system.

Sir J. Paget and Drs. Barwell and Broadbent were, on the other hand, inclined to think that the joint affections were not of rheumatic or traumatic origin, but signs of the nervous affection.

The case before us corresponds in many ways with the majority of those described. The symptoms were extremely rapid in their progress, swelling quickly supervened without heat, redness, or pain. In about five weeks from the first appearance of the swelling the patient noticed the commencement of the retroflexion of the knee I have already described.

The specimen before us has some characters to which I would draw attention—namely, the absence of the rapid absorption of the articular ends of the bones, to which all observers have drawn attention as occurring in the majority of cases, the presence of small bony growths, and in some places of eburnation, the rapid destruction of the interior ligaments, producing præternatural mobility, and the absence of fixation, or limited movement, frequently to be met with in rheumatic arthritis.

Dr. J. A. Scott kindly examined the spinal cord microscopically, and reports that it presents the appearances found in locomotor ataxy. The posterior columns are in all parts degenerated. In the cervical and dorsal regions the postero-internal columns are in an extreme condition of degeneration, while the postero-external are less affected. In the lumbar region both columns are equally changed, but not to such a degree as the postero-internal columns higher up. The cells in the grey matter stain badly, and many of the cells in the anterior horn in all parts of the cord are pigmented and granular. The cerebellar tract is unaltered.

The other specimen on the table, kindly lent to me from the Museum of the Royal College of Surgeons, is one described by Dr. Leeper, in 1889, in the *British Medical Journal*, and represents the condition as occurring in the shoulder of a tabetic. In it the wasting process is advanced. The head of the humerus is separated from the shaft and lies alongside it, the glenoid cavity has disappeared, and the bone lies in the subscapular fossa, surrounded by osteophytes, and soft tissue containing hard masses, probably of the same nature—in fact, the whole osseous and ligamentous portions of the joint are totally disorganised.

I thought this case worth bringing before the Academy owing to the somewhat rare occurrence of the disease, and also because, as far as I can find, this is the first specimen of a tabetic joint laid before a scientific society in Dublin.

ART. XIV.—*A Case of Naso-pharyngeal Fibroma.*[a] By ROBERT H. WOODS, M.B. (Dubl.), F.R.C.S., Throat Surgeon to the Richmond Hospital, Dublin.

THE patient whose case I am about to detail is a young gentleman, aged twenty-four. About May, 1888, he noticed an increasing difficulty in breathing through the left nostril, accompanied by an offensive smell, but without pain. The nostril after a while became stopped, and he then found that the right side began to be similarly affected. At this time he had frequent attacks of giddiness, his memory began to fail, and he found difficulty in concentrating his attention on any kind of work. He slept about eighteen hours out of the twenty-four, and during the remaining six was so drowsy that he could sleep at any moment. These symptoms continued with more or less constancy until he had been under my treatment for some time, when they gradually abated.

In November, 1889, being then in America, and finding his symptoms getting progressively worse, both nostrils being stopped, he consulted Dr. Isaac Barton, of Philadelphia, who examined his anterior nares and recognised a tumour in the left nostril, which, he said, was a polypus. He treated it by burning—whether with chemicals or cautery is not quite clear—but it grew faster than it was destroyed. At this time he was attacked by violent earache, which lasted a week and ceased with the discharge of a quantity of matter from the left ear.

In the following month he went to Professor Garretson, who, recognising a tumour in the posterior nares, split his soft palate preparatory to operating from the mouth. He then applied a post-nasal forceps with the object of tearing the growth away, but only succeeded in removing a very small quantity. This operation was followed by deafness in the left ear, which lasted between two and three months.

Prof. Garretson then made a second attempt to remove the tumour by means of a wire ecraseur passed through the nose, but the wire breaking several times the attempt was abandoned. Five weeks later he applied London paste, which was followed by very violent hæmorrhage for more than an hour, by which time the patient had lost such a quantity of blood that he was verv weak.

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[a] Read before the Section of Surgery of the Royal Academy of Medicine in Ireland, on Friday, May 4, 1894. [For the discussion on this Paper, see p. 257.]

London paste was again applied at the end of a fortnight, and the application was again followed by hæmorrhage so considerable that he was greatly enfeebled. With the object of restoring his strength he was recommended to take short walks in the open air; this he attempted several times, but on each occasion blood began to flow before he had gone many paces. Nothing further was done for him in America.

In May, 1891, the patient returned home, still unable to use his nose for physiological purposes, and consulted Mr. Thornley Stoker, who, with the object of radical removal, submitted him to the following operation:—The ala of the left nostril was raised by a curved incision carried along the fold, and the anterior border of the superior maxilla chipped away for the purpose of getting more room. The anterior part of the tumour was gouged away, when it was found that its attachments were so extensive and the hæmorrhage so fierce that complete extirpation was impracticable. The bleeding was stopped by plugging.

Mr. Stoker was of opinion that the base was attached to the body of the sphenoid, basi-occiput, and septum nasi. My later observations confirm this view, but I believe it was also attached to the outer wall of the nasal fossa on the left side in the neighbourhood of the palate bone. Mr. Stoker shortly afterwards commenced a series of operations with the galvanic snare, by which he removed a considerable portion, partly through the nostril and partly from behind through the mouth. He, in addition, punctured the growth with the electro-cautery, with the object of causing it to shrivel. In January, 1892, while the patient was undergoing this treatment, Mr. Stoker transferred the case to me.

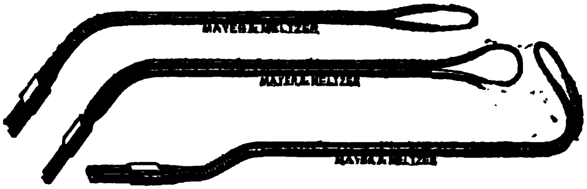
On examination I found the following conditions present:—There was little abnormal in the contour of the nose, the bridge being slightly widened. The soft palate, which lay at an abnormally low level, was split for about half an inch immediately to the left of the uvula. The whole naso-pharynx, down to the level of the soft palate, was filled with a rounded, smooth, and fixed reddish-grey tumour of cartilaginous hardness, invisible directly from the mouth, but plainly to be felt with the finger and seen with the post-rhinal mirror. It adapted itself behind and laterally to the pharynx walls, and in front to the soft palate. No pedicle could be felt, a probe passing with comparative ease between the tumour and the pharynx wall and soft palate in all directions. When looked at from the front the mucous membrane was seen to be hypertrophied on the turbinated bones, and seemed to glide into the anterior surface of the tumour, which was situated about an inch from the nostril. A probe passed into the left nostril could not be made to appear behind without using undue force. The posterior inferior segment of the left drum was occupied by a cicatrix presumably caused by the bursting of the pus above mentioned. This attack of suppurative otitis was possibly caused by the forcing of a catarrhal discharge into the middle ear when unable to make its way past the tumour.

On making very violent expiratory efforts he could occasionally get a bubble of air through the right nostril, but all efforts at forcing through the left failed. Breathing was always carried on through the mouth, and the voice was entirely without nasal tone. His general health was good, he was well nourished, had lost no flesh, and had no glands engaged.

Operative treatment having been decided upon, I proceeded as follows:—Having brushed out the pharynx, soft palate, and fauces with a 20 per cent. solution of cocaïn, I tried getting an electric snare round that portion of the tumour which presented in the naso-pharynx, using iron and steel wire as commonly sold for snares, but owing to the closeness of the tumour to the naso-pharyngeal wall the wire bent with each attempt and I failed. I then tried stronger steel wire as made for the higher piano strings; this admitted of more considerable force being used without change of shape, and I was able, with a little manipulation, to pass the loop between the upper surface of the soft palate and the growth; then by forcing the snare tubes between the tumour and the posterior pharynx wall, drawing the loop tight and passing the current, I succeeded in lopping off my first piece, which equalled a filbert in size. The raw surface bled pretty freely, but otherwise nothing untoward followed.

I continued to operate in this manner between once and four times a month, getting away larger or smaller pieces, until I could no longer get the snare to take a grip. The bleeding was sometimes very considerable, but not alarming and never required any very energetic treatment.

In May, 1892, three months after the first operation, the right nostril was quite free, his nasal tones were restored, and he could sleep with his mouth closed—a luxury he had not enjoyed for nearly four years. The next question was how to clear the remainder of the obstruction from the left nostril. For this purpose I devised a galvanic curette, which consisted of a semicircle of platinum wire about an inch long, the ends of which were brazed into two insulated copper rods connected with the battery through the handle, the rods having the usual curve of post-nasal instruments. The arc was so arranged that the plane of the semicircle, when in position in the posterior nares, was parallel with the basi-occiput, and by pressing it against the posterior surface high up at the base of the skull and passing the current, the heated arc buried itself in the substance of the tumour; then, on being drawn down, it ploughed a furrow and so removed a piece of its own shape on section. In this way the whole naso-pharyynx was cleared, and attention directed to the anterior nares. A very similar and specially-made platinum arc was here used. The heated arc was first passed into the tumour close to the septum in a vertical plane, then moved outwards to another plane parallel with the first and withdrawn. In this way pieces were removed, so that by November the way through the tumour from the anterior to the posterior nares was established, and it became possible to operate with the utmost nicety from the anterior nares while looking from behind through the post-rhinal mirror. The instrument was first passed through the nostril with the right hand until the platinum arc projected well into the naso-pharynx. The mirror was then warmed and introduced through the mouth with the left, the patient himself holding the tongue depressed by a Türck's spatula. The flat side of the loop was then applied to the desired place, and on the current passing was made to sink into the tissues; then, on being withdrawn, a piece corresponding to the size of the loop fell away. In this manner the left nostril was made perfectly free by the end of December.



I continued operating until everything which could be recognised as abnormal, either from in front or behind, was removed. This was about the middle of January.

The patient is now quite well in every respect. His voice has recovered its normal nasal tone. The wound in the soft palate is not extensive enough to interfere with the closure of the posterior nares. He pronounces his labial and dental consonants perfectly, and is quite free from the abnormal feelings of which he used to complain.

The number of operations was necessarily considerable; this, however, was not an unmitigated disadvantage, for the removal of small pieces at intervals of a week or ten days must, by gradually diminishing the tumour and so the demand for blood, have brought about a diminution in the size of vessels, which, if severed in the first instance, must have bled very seriously.

As a proof that such a shrinking of the vessels really did take place, it may be mentioned that the quantity of blood lost from the operations was progressively less as the pedicle was approached, the bleeding during the last few operations being trivial.

Local anæsthesia was always induced by painting the anterior and posterior nares, soft palate, and fauces with a 20 per cent. solution of cocaïn. During and after operation through the posterior nares, the patient's suffering was almost nil, but through the anterior nares it was sometimes considerable. The pain in the latter case was always referred to the teeth of the left upper jaw, which can be explained by assuming that the sensations received by the nasal branches of the anterior palatine nerve were referred to its alveolar distribution.

Dr. H. C. Earl, who kindly examined the tumour microscopically, reports it to be a fibroma with a few cellular spots here and there. It is now over thirteen months since the last operation, and the tumour has not recurred. We are therefore, I think, fairly entitled to call the case cured.

This case demonstrates the possibility of successfully dealing with naso-pharyngeal tumours without resorting to methods so dangerous and disfiguring as those detailed by Mr. Christopher Heath in the *British Medical Journal* of December 10th, 1892.

The successful removal of this polypus is very largely owing to the instrument which I have called the galvanic curette, and which, so far as I know, has not been used before. Without it complete removal would have been impossible without running great risks, while with its use it was to a large extent a matter of manipulation.

The following advantages may, I think, fairly be claimed for this method of operation:—

(1) The patient is neither maimed nor disfigured.

(2) The operator can see exactly what he does, so that the danger of injuring healthy structures is less, and the chances of radical removal very much greater than when working with a sharp tool in a pool of blood with only the sense of touch as a guide.

(3) There is less danger from hæmorrhage, both on account of the shrinkage of the vessels with the lessening of the tumour, and from the fact that burnt vessels bleed less than cut ones. This is a consideration of prime importance in view of the fact that death has more than once occurred from hæmorrhage during operation by the knife and gouge.

I last saw the patient on June 5th, 1893, four months after the last operation. He was then quite well in every respect. His voice had a quite normal nasal timbre. So perfectly was it restored, in fact, that he had adopted the stage as his profession, and was then on his way to enter on an engagement at one of the leading London theatres.

ART. XV.—*The Muscles of the External Ear.*[a] By AMBROSE BIRMINGHAM, M.D., Professor of Anatomy, Catholic University.

PRELIMINARY REPORT.

FOR some little time past I have been engaged in the study of the muscles of the external ear. So far I have examined but a small part of the material collected with this object, and the following remarks are to be looked upon merely as an *interim* report, which I hope to supplement largely in the coming year. Perhaps, indeed, I should protect myself by adding that as the work proceeds I may find it necessary to modify or completely change some of the views expressed in this communication. I shall also hold over an account of the literature of the subject until the final report is ready.

So far my work has been confined chiefly or almost entirely to man, but to clear up many points of interest it will be necessary to have recourse freely to an examination of the lower animals.

I have tried to approach the study of these muscles without prejudice or strongly-conceived ideas as to their arrangement, and with this object I put off the examination of the literature of the subject until I had advanced some distance in the study of my specimens.

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[a] Read before the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland, on Friday, May 25, 1894.

It will be convenient to state here the chief points sought to be established in this communication:—

1. That the tendinous band which lies on the superior curved line, and is said to represent the transversus nuchæ, gives origin to the middle portion of the occipitalis, and to the upper division of the retrahens auriculum.

2. That the occipitalis is made up of three parts—an internal, which arises from the curved line, a middle, from the transversus nuchæ tendon, and an outer, from the mastoid portion of the temporal bone; and that the outermost fibres of the muscle are frequently connected to the ear, while the next fibres send their aponeurosis forwards *under* the attolens.

3. That the retrahens, in its perfect condition, is composed of an upper division which arises from the mastoid in connection with the outer part of the occipitalis, and a lower which springs from the transversus nuchæ tendon.

4. That the attolens arises from the outer surface, not from the margin of the epicranial aponeurosis, and that it is inserted partly into the outer, partly into the deep surface of the pinna.

5. That the attrahens auriculam is a perfectly distinct and separate muscle, unconnected with the attolens; that it lies beneath the temporal artery at a deeper level than that muscle, and that a connection can occasionally be traced between it and the upper part of the frontalis.

6. That a parotido-auricularis is present in a fair proportion of cases.

7. That the helicis major is an extrinsic muscle of the ear, connected above with the attolens.

8. That there is possibly a connection between the retrahens on the one hand and the obliquus and transversus on the other.

9. That there is a deep fascia in the scalp between the epicranial aponeurosis and the superficial fascia.

Every one who has worked at anatomy will agree with me that the descriptions of the ear muscles found in our English text-books are exceedingly loose. Indeed, on looking for any clear or special information regarding them we meet with little success; the impression always left on the mind is that very little attention has been paid to their actual condition. The following would probably represent in brief the average description of the extrinsic ear muscles:—The retrahens or auricularis posterior, the best developed of the ear muscles, is composed of one or two fleshy bundles, which arise from the mastoid portion of the temporal bone and gain insertion into the deep surface of the back of the concha. The attolens or auricularis superior is a fan-shaped thin muscle which springs above from the margin of the epicranial aponeurosis and is inserted below into the upper part of the pinna on its deep surface. The attrahens or auricularis anterior is described as being little more than the anterior part of the attolens, with which it is said to be generally continuous; it is inserted into the upper and anterior part of the pinna.

In seeking the true connection of the three muscles mentioned above I have found it necessary to look carefully into the arrangement of the occipitalis, the transversus nuchæ, and in part the frontalis; reference to these muscles and certain points in connection with them will be made later on. I have also noted in each ear examined the condition of the intrinsic muscles of the pinna, and also the presence of supernumerary muscles.

As regards the absence of Muscles.—In every case examined there was a distinct, separate, and well-defined retrahens, attolens, and attrahens. There was occasionally found a parotido-auricularis (which arose from the fascia over the parotid gland and ran upwards and backwards to the lower part of the concha) (Fig. 3 P). This muscle was present three times in twelve specimens. Another supernumerary muscle which I have met a few times is made up of short fibres crossing the horizontal fissure which separates the lower part of the tragicus from the concha (Fig. 3 N).

The helicis major and the tragicus have been always present and distinctly muscular. Out of twelve ears the helicis minor could not be recognised three times, while the obliquus, the transversus, and the antitragicus were not represented by muscular fibres, once each. It should, however, be added that the muscles were, in the case of the last three, represented by fibrous tissue, but no distinct trace of the helicis minor, muscular or fibrous, could be found in the three ears in which it was noted as absent.

Regarding the descriptions of the intrinsic muscles in our text-books, I would call attention to that of the helicis major. It is described as arising from the spine of the helix, from which it runs up, lying on the front of the helix, and, we are told, it is inserted into the ridge of the pinna, where it turns back along the upper margin of the ear. The description of the antitragicus is also worthy of note in connection with what follows. It is said to arise from the outer surface of the antitragus, to cross the fissure which separates that division of the ear cartilage from the tail of the helix, into which—the tail of the helix—it is said to be inserted.

I shall now take up the various muscles *seriatim*, calling attention to any special points of interest or to details in which I have found them to differ from the usual accounts.

Transversus nuchæ or Occipitalis transversus (Testut).—There is, I find, constantly present a band of transverse tendinous fibres, which runs along the superior curved line of the occipital bone below the attachment of the occipitalis (Fig. 1 O, Fig. 2 K). The posterior part of this band may be muscular, forming a true transversus nuchæ muscle; or in connection with the lower and posterior part of it there may be developed a flat muscle nearly half an inch in width (Fig. 2 O), which is attached posteriorly to the side of the occipital protuberance; it runs forwards and a little downwards lying upon the complexus and splenius, and joins the posterior margin of the sterno-mastoid. Its connection with the transverse tendinous band mentioned above is rather slight, and is confined to the posterior part of both. In general the tendon overlaps the muscle, and I am inclined to look upon the two as separate structures.

As regards the tendinous band.—In its fully developed condition it is a considerable structure, and has the following arrangement: posteriorly it is firmly attached to the ridge-like side of the external occipital protuberance and to the superior curved line of the occipital almost as far out as the posterior border of the sterno-mastoid; here it divides into three parts; the lowest (Fig. 2 N) turns down and joins the posterior margin of the sterno-mastoid; the highest (Fig. 2 L) turns upward above the curved line, spreading out fan-like as it proceeds, and finally gives origin to the middle portion of the occipitalis—a part of the muscle which is particularly stout, and about one and a quarter inches wide. The middle portion of the band crosses and is closely adherent to the upper part of the sterno-mastoid—here tendinous—perhaps as much as half an inch below the level of its attachment to the curved line. It is finally continued into (or gives origin to) what I shall afterwards refer to as the lower division of the retrahens auriculam (Fig. 2 M). This tendinous band which I have described is said to represent the transversus nuchæ, and it is frequently muscular behind. As I mentioned above, I am inclined to consider that the flat muscle found connected with its posterior part is an independent structure. I am aware that the connections of this tendon with the retrahens and the sterno-mastoid have been already described, but its striking connection with the occipitalis, which I believe is constant, I have never seen any reference to.

Occipitalis or posterior part of occipito-frontalis.—On careful dissection I have found that this muscle arises in three pieces (Fig. 2)—an internal, C, from the superior curved line direct; a middle, D, from the upper division of the tendinous transversus nuchæ, as described above; and an outer part, E, under an inch in width—sometimes much less—which arises from the mastoid portion of the temporal bone in close connection with the upper division of the retrahens. The insertion of this outer part of the occipitalis is of special interest. Its inner fibres—constituting the greater part of this mastoid portion of the muscle—end in thin tendinous fibres (Fig. 2 F) which pass forwards *under* the posterior margin of the attolens and are then continued onwards under the whole muscle; while its outer fibres—a variable number—are inserted through the medium of a thin tendinous layer, G, into the deep surface of the pinna immediately behind and in connection with the attolens. This latter part inserted into the ear may sometimes be wanting, but under all conditions there is an indirect connection with the ear, for the part of the occipitalis which is continued forwards in a tendinous or fibrous condition under the attolens spreads out finally under that muscle into a strong layer of fascia which is continued down under, and becomes united to the pinna beneath, the attolens. Finally, it is worth noticing the peculiar outline which the origin of the central part of the occipitalis from the fan-like tendon of the transversus nuchæ gives to the lower margin of the muscular part of the occipitalis. The lower level of the muscular fibres form nearly straight lines in the inner and outer divisions of the muscle, but at the middle, owing to the presence of the fan-shaped tendon from the transversus nuchæ, which runs outwards and upwards, the muscular margin here curves upwards in a very characteristic fashion (Fig. 2).

Testut, in the last edition of his "Anatomie Humaine," refers to the connection of the outer part of the occipitalis with the pinna, which, it may be added, is the usual condition in many monkeys; other authors also refer to the connection, but no one, so far as I know, has pointed out the division of the muscle into the three parts described above, nor the passage of the aponeurosis of its mastoid portion forwards under the attolens.

Retrahens Auriculam or Auricularis posterior.—I have found this muscle represented by every number of slips—distinct fleshy slips—from one to five. Although I have seen it occasionally represented by a single muscular bundle, in all other cases—and they form the vast majority, that is, where there were two or more bundles—these bundles were always arranged in two sets, forming two main divisions of the muscle—an upper and shorter—connected with the outer (mastoid) portion of the occipitalis, P, and a lower and longer (Fig. 2 R) connected with the transversus nuchæ. The former of these—the upper division of the muscle—always arises in very close connection with the outermost part of the occipitalis, springing from the bone immediately below, just external to, or partly under cover of, the outer margin of the occipitalis. When the upper division was made up of two or more slips, the highest of these was closely related to the occipitalis, the others were attached to the bone in its neighbourhood. On seeing this region carefully dissected, on observing the almost complete separation of the mastoid portion of the occipitalis from the rest of that muscle, its trend towards, and its frequent connection with, the ear; adding to these the close relation of the upper part of the retrahens to this portion of the occipitalis, one finds it difficult to resist the conclusion that the upper part of the retrahens is produced by a slipping or rotating downwards of the outermost part of the occipitalis (Figs. 1 and 2). The lower division of the retrahens, which may be made up of one, two, or three slips, if traced backwards, will be found to be perfectly continuous with the transversus nuchæ, through the medium of a distinct bundle or bundles of tendinous fibres which cross and are closely bound to the sterno-mastoid (Fig. 2 M). As the muscular slips are followed back at first sight they seem to be attached to the bone like the upper part of the muscle; however, on removing the surrounding connective tissue it will be found that there is no actual connection to the bone, the muscular fibres passing continuously into tendinous bands, which are bound tightly to the mastoid and the tendon of the sterno-mastoid, but which can be dissected off these parts and followed right back to the transversus nuchæ, so that there can be little doubt that this inferior division of the retrahens is the anterior end of the transversus nuchæ—

an opinion in accord with the description in some Continental text-books.

From the above it will be seen that I consider that the muscle is composed of two separate parts—one standing in close relation to the outer margin of the occipitalis, the other representing the anterior end of the transversus nuchæ.

Regarding the insertion of the retrahens there is little to be added to the ordinary description, the greater part of the muscle is inserted close together on the deep surface of the concha about opposite the crus of the helix; it may, however, be remarked that in a considerable number of cases, where the muscle was made up of several slips, the lowest of these, as it approached the pinna, separated off from the others and gained an insertion into the concha a third of an inch lower down.

Another point of some interest is, that twice I thought I found a slight connection between the highest bundle of the retrahens and the obliquus. This would point to the retrahens as the original source of the obliquus. A similar equivocal connection between the lower part of the retrahens and the transversus was observed. It is worth while remarking, in passing, that Krause, in his "Anatomy," speaks of the muscle as being always double or treble; he refers to it as the retrahentes, not the retrahens, but he makes the whole of it spring from the mastoid portion of the temporal bone.

Attolens auriculam or Auricularis superior.—It is, I think, universally taught that the attolens is in the same plane as the epicranial aponeurosis—in fact, it is usually looked upon as the lateral portion of that sheet which is represented by the frontalis in front, the occipitalis behind, and the epicranial aponeurosis between. Further, the attolens is always described as a thin fan-shaped muscle which arises from the lateral margin of the epicranial aponeurosis. This certainly is the connection which seems to exist between the two structures, even on careful dissection; but occasionally one meets a head in which the development of the parts, particularly of the occipitalis, is specially favourable, then it may be made out distinctly and without the slightest doubt that the attolens arises, not from the margin but from the superficial surface of the aponeurosis of the occipito-frontalis which lies under it. As mentioned before, when speaking of the occipitalis in a well-developed subject, the outer part of this latter muscle can be followed forwards and upwards as a muscular sheet towards the attolens, then as a tendinous layer under that muscle (Fig. 1 L and Fig. 2 F). Higher up on the head in a favourable case the tendinous fibres of the aponeurosis which succeed the muscular part of the occipitalis can be clearly observed passing under the margins of the attolens, and can even be seen running forwards beneath the muscle in the interval between its scant fleshy fibres (Fig. 2). Finally, if the scalp be removed as a whole and dissected from the deep surface, it can be shown that the epicranial aponeurosis lies under the attolens.

The insertion of the attolens as usually given is very vague, and, I should add, inaccurate. We are told, as a rule, simply that it is inserted into the upper part of the deep surface of the pinna. This is incomplete. The full insertion is as follows:—The anterior fibres are inserted into the outer surface of the helix, and into the anterior margin of that structure (Fig. 3 C); the posterior half of the muscle is inserted into the deep surface of the fossa triangularis (or fossa of the antihelix) of the pinna, which on this surface is represented by a convexity (the eminentia fossæ triangularis of Schwalbe). Between the two insertions is a part in which the muscular fibres are few or absent, their place being taken by connective tissue; at this point an over-careful dissection may remove the connective tissue, when the muscle near its insertion will be divided into two parts—a condition described as the normal by Henle. Before I read Henle's account I too thought that the muscle was here divisible into two, and I even thought that the anterior part overlapped the posterior higher up, but subsequent and more cautious dissection incline me to the belief that a division is artificial. The portion of the attolens inserted into the helix is attached along a line, beginning about the middle of the outer surface of the helix, a little above the level of its spine; from this the attachment runs nearly vertically upwards and turns over the anterior margin, about the level of the upper part of the fossa triangularis (Fig. 3), while the posterior fibres of the muscle, which are separated from those just described, either by scattered muscular fibres or by connective tissue, gain insertion into the deep surface of the fossa triangularis. It will be observed, then, that the attolens is attached partly to the outer and partly to the deep surface of the pinna, the lower part of the muscle being split, as it were, by the projection into it of the pinna. Sometimes a few of the most anterior fibres are inserted at a distance from the rest close to or at the base of the spine of the helix. Of this portion of the muscle I shall now have to speak more fully.

Debierre, in his "Anatomy," refers to the difficulty of making out with certainty the attrahens auriculam, which, he says, has been usually described as continuous with the anterior part of the attolens, but, he adds, it will be found that the attrahens is always separated from the attolens by the temporal vein. It is true, as a rule, that the anterior part of the attolens is more or less distinctly separated off from the rest of the muscle (Fig. 3 B, Fig. 1 E) by the posterior branch of the superficial temporal vein (Fig. 3 V), which (tracing upwards) comes through and becomes superficial here, while the corresponding artery runs up under the anterior part—often the mere edge—of the attolens. Besides, this small division of the attolens is generally inserted at some little distance from the rest of the muscle, approaching nearer to, and sometimes reaching the base of, the spine of the helix, while at its origin it is shorter than the fibres of the attolens, not reaching so far up on the side of the head. This division of the attolens just described does, especially in some subjects, look like an independent muscle, and one can well understand that it might be dissected and described as the attrahens.

Attrahens auriculam or Auricularis anterior.—There is not a correct description of this muscle in any text-book with which I am acquainted. The want of a proper account of the muscle is felt most keenly by dissectors. I fear few students, following with the greatest care and skill the directions given for finding it in any of our practical anatomies, would succeed in displaying the true attrahens? The universal description is that the attrahens will be found quite superficially in the superficial fascia at the anterior border of the attolens, with which muscle it is frequently continuous. Now this description is inaccurate, in that the attrahens does not lie superficially; it is not on the same plane as the attolens, but at a much deeper level, and it never is continuous with that muscle, but may be partly overlapped by it, and is always separated by a considerable interval in depth from the attolens.

As is well known, the attolens lies immediately under the skin, separated only by a thin layer of superficial fascia, and the posterior branch of the superficial temporal artery runs upwards, at first a short distance in front of the ear, and then passes onwards towards the vertex under cover of the anterior part of the

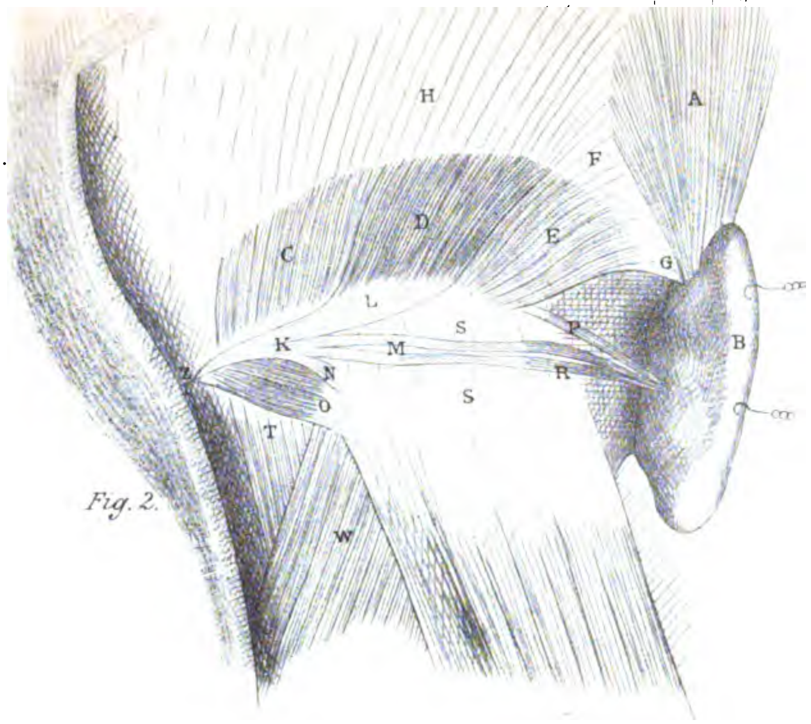

Fig. 2.

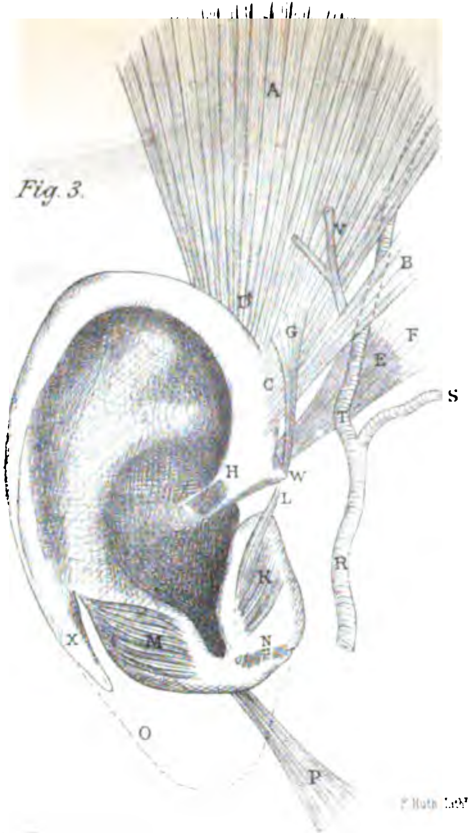

Fig. 3.

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Dr BIRMINGHAM ON THE ANATOMY OF THE EAR MUSCLES

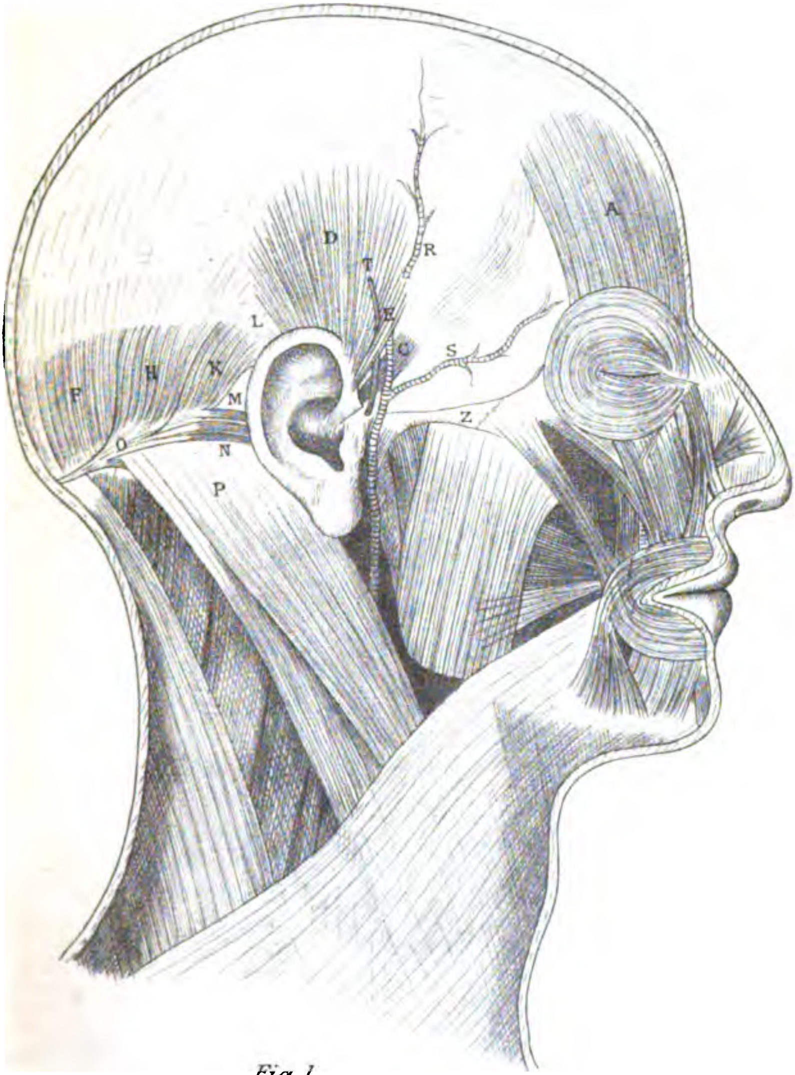

Fig. 1.

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D^r BIRMINGHAM ON THE ANATOMY OF THE EAR MUSCLES

attolens (Fig. 1 R). If in front of the ear, immediately above the level of the spine of the helix (or the point at which the crus of the helix springs from the bottom of the concha), the skin be reflected forwards, the removal of some superficial fascia will display the temporal artery (posterior branch), and perhaps the anterior edge of the attolens crossing it higher up. If, then, the temporal artery be drawn forwards, and the whitish fascia which lies under it removed in a line forwards and upwards from the spine of the helix, there will be seen a distinct, well-defined, and comparatively well-developed muscle (Fig. 1 C and Fig. 3 E) of a reddish colour—much redder than the attolens—which will probably measure about ¾ to 1 inch in length, and ¼ to ⅓ of an inch in width. This muscle, which appears to be lying almost directly on the temporal fascia, is the attrahens. I have never found it absent, and it is never difficult to display.

As to the appearance of the muscle displayed in the manner explained above.—In shape it is a modified fan, the upper or anterior end being about twice as wide as the part attached to the ear. In position it lies well above the level of the zygoma, the part near the ear being about one-third of an inch above that bony arch. Its long axis runs from the upper part of the spine of the helix towards the frontal eminence, or a higher point. Its depth from the surface, as mentioned above, is much greater than that of the attolens; they are separated in the line of the temporal artery by the thickness of that trunk, and nearer the ear by the thickness of the anterior border of the helix (Fig. 3); for, as will be seen, the attrahens is inserted chiefly on the deep surface of the pinna, while the adjacent part of the attolens—that is, the anterior portion—is attached to its outer surface, consequently the pinna lies between the two muscles close to their insertion, separating them, and showing at once the depth of each.

Origin.—In many heads the muscle seems to arise from a layer of fascia which lies over the temporal aponeurosis, the muscular fibres cease above along a curved convex border; beyond this they are replaced by a thin tendinous layer, which, after continuing the direction of the muscle for a very little way, seems to spread out and blend with or spring from the underlying fascia, and the muscle can be followed no further. In other heads the little tendinous layer described above is perhaps followed by a very thin muscular stratum, which grows indefinite further onwards. In the most favourable subjects (Fig. 1) the muscle can be traced into connection with the outer edge of the upper portion of the frontalis—in this wise: if the fascia be carefully removed from the upper and outer part of the frontalis, near where it passes into the epicranial aponeurosis, there will be found an extremely thin layer of muscular fibres coming off from the frontalis, and curving with a distinct bend backwards and downwards towards the ear (Fig. 1 B), the whole arrangement producing an appearance as if what was originally the outer margin of the frontalis were seized at its lower part and drawn backwards towards the top of the ear. This thin layer of muscle is continued, with more or less tendinous intermixture, into the attrahens muscle, its upper or posterior margin grows thinner and is lost in the region of the attolens, while its lower border is continued as a membranous layer down over the zygoma into the parotid fascia.

Insertion.—The insertion of the muscle is not quite so simple as it looks at first sight. The first impression is that it is simply inserted into the deep surface of the spine of the helix. On more careful dissection it will be found that while the anterior fibres are inserted into the deep surface of the spine, the remaining fibres forming the greater part of the muscle are inserted into the deep surface of the concha, the line of attachment running back from the spine of the helix, extends on the concha across the top of the meatus, and sometimes even curves down behind it for a variable distance. The fibres which are continued furthest back on the concha, and even down behind the meatus (as it were partly encircling the meatus), are those which form the upper and posterior part of the attrahens, and they are so disposed that, if their strength and the mobility of the pinna were great enough, on their contraction the point or top of the ear would be drawn forwards—a movement with which we are well acquainted in the lower animals.

Briefly, then, I would describe the attrahens as a small flat muscle of a distinct red colour, and of a narrow fan-shape, which will be found lying beneath the temporal artery in front of the ear, and a short distance above the zygoma, running in a line from the spine of the helix to the frontal eminence. It is most easily exposed by drawing forward the temporal artery and going through the underlying fascia in the line of the muscle. It seems to arise by a curved margin from a layer of fascia which lies over the temporal aponeurosis about ¾-inch in front of the ear, and here its muscular fibres end abruptly; but, in certain cases, the muscle may be traced through the medium of scattered tendinous and thin muscular fibres into connection with the upper and outer part of the frontalis. The insertion is into the deep surface of the spine of the helix, and into the concha behind this, running backwards above the meatus for a variable distance. The insertion into the concha is the chief attachment.

Probably the most notable point about the attrahens as an ear muscle is the considerable depth at which it lies.

Parotido-Auricularis.—This is an occasional muscle which I found present three times in twelve specimens. It is slightly developed, being always pale and extremely thin; in length it measures nearly an inch, in breadth at its origin about ⅛-inch, and it rapidly narrows to a pointed insertion (Fig. 3 P). It springs from the fascia over the parotid gland, and running backwards and upwards it gains insertion into the lower part of the deep surface of the concha, in about the line of the anterior border of the antitragus. It is generally present in the lower animals.

Helicis Major.—I do not know why this muscle is described as an intrinsic muscle of the ear. I have never seen it confined to the ear alone. One end certainly is distinctly fixed to the ear, the other passes on to the side of the head into connection with the attolens. When carefully dissected, the helicis major looks much more like a degenerated extrinsic muscle, or a derivative of the attolens, than an intrinsic muscle of the pinna (Fig. 3 G).

The muscle is (as usually described) attached below by a pointed extremity to the apex of the spine of the helix (Fig. 3 W). It runs upwards, lying entirely in front of the pinna—not on the helix as we usually see it in illustrations—and, passing rather obliquely across the anterior part of the attolens, it ends about the level of the upper margin of the pinna, or higher up, in the fascia over the attolens, or by blending with the fibres of the muscle itself (Fig. 3 G). Indeed, in one specimen examined, the helicis major appeared decidedly to be a derivative of the attolens. Some few fibres may end in the fascia covering the helix where it turns backwards, but this is rarely a marked attachment.

I have never seen a case in which I could satisfy myself that the muscle was to any great extent *inserted* into the ridge of the helix, as described in nearly all our text-books. In one or two specimens it ended after a short course near the helix, but in front of it, and with scarcely any attachment to it.

It is sometimes stated that the attrahens is occasionally continued in part into this muscle. This is never the case, so far as the true attrahens, as described above, is concerned. But there is frequently continued into it a part of (or, in other words, it is connected above with) the attolens, particularly with the most anterior fibres of the muscle.

Helicis Minor.—I have little or nothing to add to the usual description of this muscle. Its frequent absence, as recorded above, is easily associated with its distinctly rudimentary character in all cases. I would simply call attention to the fact that it usually bridges over a hollow or undulation in the cartilage on which it lies, as in the case of the antitragicus.

Tragicus.—I have always found this muscle present, though occasionally very badly developed. The slip, which is sometimes prolonged from the tragicus to the spine of the helix, was present only twice in twelve ears. I expected to find it much more frequently. In one case almost all the fibres of the muscle arose fan-like from a little tendon, which was attached to a small spine situated at the lower and back part of the tragus.

Antitragicus.—In one case this muscle was not represented by muscular fibres, its place being taken by ill-defined tendinous fibres. It always, like the helicis minor, will be found bridging over a distinct hollow or undulation in the underlying cartilage of the antitragus. I have never—contrary to the usual description—seen an ear in which the muscle was distinctly attached to the tail of the helix. Its two extremities are connected entirely to the antitragus, never crossing the fissure between this latter and the caudate process of the helix (Fig. 3 M). Owing to the oblique slope of the surface of the antitragus the muscle, when the soft parts of the ear are dissected off from the cartilage, appears to lie perhaps more on the deep than on the superficial surface of the pinna.

Transversus.—This muscle, which is made up of parallel or slightly radiating fibres, forms a thin, broad sheet, which is attached on the one hand to the prominent back of the pinna, along what may be described as the junction of the bottom and posterior wall of the concha. It runs obliquely backwards and upwards and gains insertion, not so distinctly into the ridge produced on this surface by the scaphoid fossa as usually described, but rather into the bottom and posterior border of the groove which on this aspect represents the antihelix.

A few times I thought I could trace a connection—not certainly muscular—between the retrahens and this muscle as well as between the retrahens and the obliquus; but I am not quite satisfied on this point.

Obliquus.—Nothing special was noted about this muscle, excepting its constancy. In several books it is described as an occasional muscle. I found it absent only once in twelve ears. Of its connection with the retrahens I have already spoken.

In addition to the above muscles, I have twice found a small muscle made up of short fibres crossing the fissure, which runs nearly horizontally between the lower margin of the tragus and the lower end of the concha. If this be identified as the *dilator conchæ* of Theile, I think the muscle has been badly named.

In connection with the dissection of the occipito-frontalis, I was struck by the constant presence of a deep fascia of the scalp superficial to the epicranial aponeurosis, although no such structure has to my knowledge been already described. We are all familiar with the peculiar granular appearance of the superficial fascia, which is the only structure of that kind described between the skin and the epicranial aponeurosis. In cleaning the occipito-frontalis I have frequently begun over the occipitalis, and removed the skin and fascia together, cleaning the muscle perfectly at the one operation; this method was continued forwards over the head, the epicranial aponeurosis being left behind perfectly clean. On examining carefully the deep surface of the layer removed, I was surprised to see not the expected granular layer of fat, but, instead, a perfectly well-defined and closely-woven continuous sheet of deep fascia. That this fascia is always present, and that it is a distinct and separate structure, I am thoroughly satisfied. I have not yet had an opportunity of examining into its connections and its nature fully, but I am inclined to think that it is formed by an expansion of the deeper parts of the fibrous trabeculæ of the superficial fascia, with which it is intimately connected. On the other hand, its union with the epicranial aponeurosis is also very close. That such a fascia as this would be present might well be anticipated, for it is extremely unlikely that the fibrous bands which pass through the superficial fascia from the skin would be attached directly to the aponeurosis of a muscle. It is much more probable that these bands would end on a layer of deep fascia, which, in turn, would be connected by ordinary close connective tissue to the underlying aponeurosis.

Consequently I should describe the scalp at the vertex as being composed of—(1) skin; (2) superficial fascia (a layer of granular-looking fat traversed by numerous fibrous septa); (3) deep fascia (a closely-woven sheet of connective tissue); (4) the epicranial aponeurosis; (5) loose layer of connective tissue; and (6) pericranium.

CUTANEOUS ABSORPTION.

THE *Canadian Practitioner* quotes from the *Revue International* the following results of experiments by SS. Fubini and Pierini, which "go to show that the healthy skin does not absorb non-volatile substances. After immersions of both arms and forearms for half an hour in five per cent. solutions of sodium salicylate, and five per cent. solutions of potassium iodide, the urine contained neither salicylic acid nor iodine. The posterior extremities of guinea-pigs were immersed for one hour in a two per cent. solution of nitrate of strychnine and a 1 in 400 solution of sulphate of atropine without strychninic symptoms, and without mydriasis."

VACCINATION AND RE-VACCINATION.

DR. GOLDSCHMIDT, of Strassburg, writes—"Germany is the sole country where compulsory vaccination and re-vaccination have been practiced since 1875, and a glance at the following figures show the striking result of this practice as a means of effectually exterminating smallpox:—

"Annual average of deaths from smallpox among 100,000 inhabitants in Prussia, 1860-69, before the compulsory law, 33·84; between 1875–84, after vaccination and re-vaccination (compulsory) 2·23."

In Berlin, Dresden, Breslau, and Bavaria, under compulsory vaccination the smallpox deaths per 100,000 (1875–84) have been 1·68, 1·48, 1·61 and 1·11 respectively; in the following cities where vaccination is voluntary, the deaths per 100,000 during the same period were:—Paris, 28·95; Vienna, 84·37, and in London, where one vaccination only is compulsory, the deaths were 25·50 in the 100,000 inhabitants. As to re-vaccination, it has been shown that the proportion of successful operations increases with the age of the subject. Thus the percentage of success in those vaccinated between 6 and 7 years of age, was 32·60; 7 to 8 years, 64·00; 8 to 9 years, 72·52; 9 to 10 years, 79·63; 10 to 11 years, 85·94; 11 to 12 years, 88·64, and adults, 90·00. These facts, and others like them which are accumulating constantly, prove the absolute necessity of re-vaccination, since they show that in 85 to 90 times in the 100, the immunity against smallpox conferred by the first vaccination has disappeared in twenty years; they also demonstrate in a most striking manner how certain as measures of public defence against the spread of smallpox are compulsory vaccination and re-vaccination.—*Journal of Amer. Med. Ass.*

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Dictionary of Medicine, including General Pathology, General Therapeutics, Hygiene, and the Diseases of Women and Children. By various Writers. Edited by RICHARD QUAIN, Bart., M.D. Lond., LL.D. Edin. (Hon.), F.R.S.; Physician Extraordinary to Her Majesty the Queen; President of the General Council of Medical Education; Member of the Senate of the University of London; Hon. M.D. Trin. Coll. Dublin; Hon. M.D. Royal University of Ireland; Fellow, late Vice-President and Senior Censor of the Royal College of Physicians; Hon. Fellow of the Royal College of Physicians of Ireland; Consulting Physician to the Hospital for Diseases of the Chest, Brompton, and to the Seamen's Hospital, Greenwich. Assisted by FREDERICK THOS. ROBERTS, M.D. Lond., B.Sc.; Fellow of the Royal College of Physicians; Fellow of University College, &c.; and J. MITCHELL BRUCE, M.A. Aberd., M.D. Lond.; Fellow of the Royal College of Physicians, &c. New Edition, revised throughout and enlarged. In Two Volumes, with 181 Illustrations. Medium 8vo. London: Longmans, Green & Co. 1894. Vol. I.: Abdomen—Lysis. Pp. 1223. Vol. II.: Macrocheilia—Zyme. Pp. 1260.

TWELVE years have elapsed since the publication of the original issue of "Quain's Dictionary of Medicine" may be said to have fairly taken the medical world by storm. With pardonable pride, the editor points out in the preface to the new edition that the gratifying reception accorded to the "Dictionary" made it abundantly evident that the object in view in its publication had been successfully attained. Since its appearance in 1882 more than 33,000 copies had been issued in this country and America, whilst the editor personally had received most gratifying assurances of the value and utility of the work. By its publication there had been placed "in the hands of the practitioner, the teacher, and the student, a means of ready reference to the accumulated knowledge which we possessed of scientific and practical medicine, rapid as was its progress, and difficult of access as were its scattered records."

The fame of the Dictionary is by no means confined to medical circles, and it has come to our knowledge that a copy of the work has more than once been added to the book-shelves of non-professional libraries—for example, in places of business, not only as a book of reference on matters medical, but also as a guide to the choice of a consultant! The writers in the Dictionary are regarded by the public, and often not without good reason, as specialists or experts in the subjects upon which they write. Perhaps no higher tribute than this has ever been paid to any work on medicine.

So rapid has been the progress of scientific medicine in recent years, that a complete revision of the Dictionary had of late become essential, particularly in connection with the great topics of the causation of disease and the preservation of health. The task of revision has been well done. Whatever was good in the old edition and was not now obsolete has been piously retained. But there is an immense amount of new matter, and the work has been skilfully brought up to date by a judicious blending of the old and the new. The number of pages in the whole work has been increased from 1,834 to 2,518; but this is partly due to the fact that the Dictionary, consisting now of two volumes, has been entirely reprinted in larger type.

The scheme of the work remains unaltered. In its pages the several diseases are discussed at length in alphabetical order, each article including an account of the ætiology and anatomical characters of the disease described; its symptoms, course, duration, and terminations; its diagnosis, prognosis, and treatment. General pathology, general therapeutics, and hygiene, all receive full consideration. Lastly, the diseases peculiar to women and children are treated, both in aggregate and in detail, under their respective headings.

Writing in Ireland, we may be allowed to indulge in a passing grumble that so few names of Irish physicians appear on the roll of contributors to a truly national and epoch-making literary undertaking.

All told, the Irish names number 13 out of a total of 212 writers, and of the "baker's dozen" not more than nine lived or do live in the Emerald Isle. Foremost in the list is the name of the editor, Sir Richard Quain, Bart.; then we have Sir Walter Foster, as distinguished in the political world as he is in the more sober paths of medical science; and Dr. Charles A. MacMunn, whose researches on the blood have rendered him famous. Dr. E. D. Mapother is another Irish author, who now lives in England; so also does Sir William MacCormac. The place of the late Dr. Thomas Hayden has been well filled by Dr. Christopher J. Nixon, who has, however, had but scanty opportunity of displaying his well-known powers of observation and literary ability. The same remark applies to our fellow-countryman, Dr. James Little. The other names on our patriotic list are those of Sir John Banks, K.C.B.; Dr J. Magee Finny (mis-spelled "Finney," and wrongly described as Physician to the City of Dublin Hospital—a matter of ancient history at the present time), Dr. T. W. Grimshaw, our learned and philanthropic Registrar-General; Dr. Alex. McKee, and Dr. More Madden. The Irish writers who have joined the staff in 1894 are Sir John Banks, Drs. McKee, MacMunn, Mapother, and Nixon. To the first we are indebted for a scholarly article on "Typhus Fever," which reminds one of the best traditions of the old school of Irish Medicine, made famous by Cheyne, Graves, Stokes, March, and Corrigan. When reviewing the first edition of the Dictionary it was our painful duty to draw attention in unsparing terms to the defective and misleading article on Typhus, which disfigured its pages. This blot on the fair fame of the work has now been expunged, and Sir John's description of "hoc morbi nomen—vix enim altius assurgit" (to borrow Sydenham's words descriptive of the infrequency and mild type of scarlatina prevalent in his days), will convey to the reader a living word-picture of a whilom fell disease.

To one statement we must take exception. Sir John asks the question: "Can it (that is, typhus fever) arise spontaneously, independently of infection?" He proceeds, "To this question an affirmative answer must be given, fortified by the fact that all infective diseases must have had a beginning." With great respect, we hold that this fact tells altogether the other way. It would be as rational to suppose that this season's crop of peas had a spontaneous origin and did not spring from last year's seed. Sir John's own faith also is apparently not very strong, for he goes on to say: "The origin of the disease spontaneously is doubted by Professor Mosler, who mentions many sources of contagion, little suspected as carriers of disease—such as dirty paper-money or coins. *There is no disease, with the exception of small-pox and scarlatina,* *which is admittedly more infectious than typhus fever.*" The italics are ours. We shall presently revert to this question of the spontaneous origin of fever.

The article on Typhoid Fever, from the pen of Sir William H. Broadbent, Bart., is a splendid contribution to the literature of the subject, and contains much original matter on what might by some be considered a threadbare theme. One notable omission in the very beginning of this article is to be regretted. The author very clearly sets forth the two distinct views with regard to the origin of the poison of the fever which have been entertained. One is associated with the name of the late Dr. William Budd, of Bristol, who held that the poison is specific in its nature, and derived only from some pre-existing case of the disease. The other, or pythogenic, theory had its chief supporter in the late Dr. Charles Murchison. According to him, the poison of typhoid fever, while usually produced in and derived from a person suffering from this fever, may also be generated anew by the decomposition of sewage, and perhaps of other forms of animal filth. Sir William Broadbent commits himself to neither hypothesis, but is content with pointing out that, fortunately, the practical issue of both theories is the same—namely, that the great preventive measure is the prompt removal of fæcal matters, so that neither air nor water may be contaminated by them. He merely says: "Typhoid fever is now generally supposed to be due to a specific *typhoid bacillus.*"

But, surely, the rival theories of those great observers—Budd and Murchison—can now be reconciled. Both wrote before Eberth had, in 1882, discovered the *Bacillus typhosus.* In the light of this discovery, Budd's exclusive doctrine at once receives its justification, but forfeits its exclusiveness, while also a door is opened through which a specific germ may infect Murchison's spontaneous cases. Our belief is that enteric fever sometimes arises apparently independently of a previous case, in the presence of fermentation of fæcal and perhaps other forms of organic matter, in which presumably the "resting spores" of its *contagium vivum*—the bacillus of Eberth—have lurked, or, we may well suppose with many recent writers that, owing to a change of environment, the usually harmless and non-pathogenic *Bacillus coli communis* (or, as it should be, *vulgaris*) has for the nonce assumed a pathogenic *rôle*, and posed as the *Bacillus typhosus* itself. Here, surely, is a rational explanation of Murchison's *de novo* origin of enteric fever, and also of the so-called autochthonous occurrence of the disease in the subjects of habitual constipation. The circumstances under which enteric fever often arises in India appeared until recently to show either that this disease can there arise independently, or at least differently, or that there is a fever not yet distinguished from enteric fever, which has a different method of rise and spread. Sir William Broadbent, in mentioning this theory only to dismiss it, quotes Dr. Climo, who has in a series of admirable papers brought forward convincing evidence that the part played by water here is in India played by dust, which conveys the poison in the dry state to articles of food and drink.

We cannot forbear to reproduce almost in its entirety a most suggestive paragraph in the section devoted to treatment. The paragraph in question deals with the effects attributable to the action of the fever-poison :—

"The entire fever-process," writes the author, "with all its concomitants, is of course due to the action of the specific microbe, but certain effects appear to have a more direct relation with the poison than others. The immediate agents in the production of nearly all, whether direct or indirect, is a ptomaïne secreted or formed out of disintegrated proteids by the typhoid bacillus; and an important question bearing on treatment is whether the toxic material is formed entirely in the intestinal canal or also in the blood and tissues. It is apparently on the first of these two suppositions that the employment of mercury, iodine, carbolic acid, sulphocarbolates, salol, salicylates, and other intestinal disinfectants suggested by the theory of the bacteroid origin of typhoid fever, has been based. Good results have undoubtedly been obtained, but not such as to invalidate the long-established conclusion that it is not within the power of medicinal agencies to cut short an attack of typhoid fever, or even to effectually modify its course. Undoubtedly ptomaïnes are formed in the small intestine, and this not only by the typhoid bacillus, but by other bacteria which find a congenial soil in the albuminoid exudations poured out by the irritated mucous membrane. It has seemed to the writer that this is the explanation of the dark and peculiarly offensive stools sometimes met with in the early stage of typhoid fever accompanied by a high temperature, and of the extraordinary oppression of the nervous system and depression of the circulation occasionally seen without high temperature, or distension or tenderness of the abdomen, or diarrhœa, or other indication of a severe attack.

"These are, therefore, the cases in which intestinal antiseptics are indicated; and, according to the writer's experience, mercurial preparations are the most trustworthy. When the motions are specially offensive and accompanied by much gas, the abdomen being tumid and the temperature high, from a half to one fluid drachm of the solution of perchloride of mercury, with perhaps one or two grains of quinine, may be given every four hours for two or three days with excellent effects. When the nervous system is evidently overwhelmed by poison, while the abdominal symptoms are slight, the local lesions may be disregarded, and two or three grains of calomel may be administered once or on two successive days. The entire aspect of a case threatening to prove fatal may sometimes be changed by thus clearing out and disinfecting the intestinal canal. It will be remembered that two or three grains of grey powder were formerly given three times a day throughout the early part of the attack.

"The formation of ptomaines in the blood and tissues is little, if at all, influenced by remedies. The chief and most characteristic effect is the rise of temperature, and this, when not aggravated by adventitious causes, is not controlled by antiseptics of any kind."

Sir William Broadbent's views on the antipyretic treatment of typhoid fever are based on a judicious combination of sound judgment and common sense. He points out the dangers of antipyretic drugs, and holds that the most trustworthy means of controlling the high temperature is cold bathing. Without going so far as to say that the cold or graduated bath should be employed in all cases, the writer of the article is of opinion that many lives would be saved were cold bathing at once put in practice, whenever a temperature of 103·5° or 104° F. in the first few days shows that the attack is of more than average severity. And no patient should be deprived of the chance which is afforded by the bath when, at any stage of the disease, life is threatened by hyperpyrexia or by consequences of high temperature, such as violent excitement, sleeplessness, restlessness, or nervous prostration.

In so large a work, covering so vast a field, it would be strange if some defects could not be detected on close examination. They are not many, it is true. One that we came across surprised us, because of the writer's fame. It is the definitions of "Acids" and of "Alkalis," for which Dr. Lauder Brunton is reponsible. Acids are defined as "substances which combine with alkalis, and destroy their power of turning red litmus-paper blue. Most of the acids also redden blue litmus, and have a sour taste; but some—for example, carbolic acid—possess neither of these properties." Alkalis, again, are said to be "inorganic substances, which turn syrup of violets green, and turmeric brown; and restore the blue colour to litmus which has been reddened by acids; they combine with acids to form salts; and their carbonates are soluble in water."

These definitions are, to our mind, materialistic and old-fashioned. They are physical, not chemical, definitions. They correctly describe many of the properties of acids and of alkalis respectively, but they do not tell us what these "substances" are. They would more fitly find a place in a standard dictionary than in a scientific "Dictionary of Medicine." To our mind, more suitable definitions would be those in the New Sydenham Society's *Lexicon of Medical Terms.*

We transcribe them for the sake of comparison, and to vindicate the justice of our criticism:—

> "Acids:—Bodies in which hydrogen is united to a simple or compound organic or inorganic electro-negative radical, either containing or not containing oxygen. Those acids which do not contain oxygen are very few in number, and are called hydrogen acids, the others are oxygen acids. The hydrogen is the essential element of an acid, but the chemical energy depends less on it than on the elective attraction of the radical of the acid for a base. This substitution of the hydrogen for a base produces a salt. Acids have a sour taste, and the power of reddening certain blue vegetable colours. They are soluble in water, and contain the elements of an acid oxide and water. Therapeutically, acids are used in the diluted state as refrigerants, anhydrotics (a mistake for anhidrotics), and astringents; and concentrated, form escharotics and corrosives.
>
> "In Pathology this term has been used to indicate certain supposed irritants which were generated in the fluids of the body and produced disease."

Here we have everything in a nutshell—the nature, properties, and uses of acids. And the same applies to the Lexicon definition of alkalis, which runs as follows:—

> "A term which includes several hydrated oxides of the alkali metals, potassium, sodium, rubidium, lithium, cæsium, and the hypothetical ammonium. They are all electro-positive, possess well-marked basic properties, and form salts with acids, turn red litmus blue, turmeric brown, syrup of violets green; they can saponify fats, are caustic, and are easily soluble in water.
>
> "The term alkali has been applied to two classes of compounds, which have only this in common that they are able to neutralise acids. One of these classes includes the mineral alkalies, and (? which) are of comparatively simple chemical constitution; whilst the other includes the complex

organic compounds produced by plants, and which are now usually distinguished as alkaloids."

Far be it from us to decry in the foregoing strictures the valuable work which Dr. Lauder Brunton has done, and is happily still engaged in achieving. His contributions to the "Dictionary of Medicine" are many and varied, and always original, and in reading through his article on "Therapeutics" we marvelled at the amount of thoughtful information which he had managed to condense into a little more than one page.

When reviewing the first edition, we took exception to Dr. Alexander Collie's classification of smallpox, and to some statements in his account of the disease, which we thought were erroneous or misleading. We are still obliged to dissent from many of Dr. Collie's views. We do not believe that variola hæmorrhagica is "invariably fatal." The words "from one or more of the mucous surfaces there will be bleeding" entirely fail to convey an adequate idea of this terrible form of the disease. In another place, he says that "the characteristic of the disease thus induced (*i.e.*, by inoculation) is its mildness." He adds:—"The objections to it (*i e.*, inoculation) are (1) that smallpox so induced is infectious, and (2) that *it is sometimes fatal.*" We cannot agree with him that the smallpox patient "should have a feather-bed"—it is hard to imagine a more unwholesome recommendation. There is not one word about the bath-treatment of bad smallpox in the acute stages, if we except the statement that "heat of skin may be relieved by cold-water sponging." Nor can we endorse the closing words of the section on treatment—"In the discrete kind little is needed; *in the malignant none is of any avail.*"

The illustrations are many and, as a rule, good. One of the most beautiful is a coloured plate in the second volume, in illustration of the article by Dr. C. A. MacMunn, on the "Spectroscope in Medicine." The plate, drawn by Dr. MacMunn himself, shows the most important spectra of pigments. Another instructive series of drawings illustrates the tumours of the connective-tissue series, which are described very fully in a long and able article on "Tumours" by Dr. R. J. Godlee. The illustrations of "Micro-organisms" in the article on that subject are very clear and instructive. They were drawn by Mr. Richard Muir, under the direct supervision of Professor W. S. Greenfield, and are, with three exceptions, from specimens prepared in his laboratory. This article is one of the longest in the Dictionary. It runs to fifty pages, is the joint work of Professor Greenfield and of Dr. Robert Muir, both of the University of Edinburgh, and is thoroughly up to date.

As reviewers, it is personally gratifying to us to note that every one of the few verbal blemishes which we criticised in reviewing the first edition has been corrected. As it now stands, this great work is a monument of patient industry, learned disquisition, unrivalled literary skill, and marvellous typographical setting.

As Irishmen, we may well be proud of the editor-in-chief of this epoch-making work. But in fairness, the names of Sir Richard Quain's helpmates in the editorial department should be mentioned with approval. Dr. Frederick Thomas Roberts and Dr. J. Mitchell Bruce have long since won their spurs as medical authors and observers. No more distinguished colleagues could Sir Richard have called to his side. But there is another name, which occupies no place upon the title page, but the influence of which may be recognised on every page from beginning to end of the Dictionary, and that is the name of Mr. John Harold, Medical Registrar to Charing Cross Hospital. Sir Richard discharges a pleasant duty when in the Preface he heartily thanks "his friend, Mr. John Harold, not only for his contributions to the Dictionary, and for the assistance which he has rendered in revising the proof-sheets and passing the work through the press, but also for the pains which he has bestowed upon the conduct of the necessary correspondence with various writers, and in collecting the material."

RECENT WORKS ON OPHTHALMIC NURSING.

1. *Nursing in Eye Diseases.* By C. S. JEAFFERSON, M.D., F.R.C.S.E. Bristol: John Wright & Co. London: Simpkin, Marshall, Hamilton, Kent, & Co. 1894. Seventy illustrations. Crown 8vo. Pp. 90.

2. *Ophthalmic Nursing.* By SYDNEY STEPHENSON, M.B., F.R.C.S. Edin. London: The Scientific Press, Limited. 1894. Sixty-two illustrations. Crown 8vo. Pp. 214.

1. DR. JEAFFERSON'S excellent little book, in its preface, claims to be, as far as the author can ascertain, the first book framed on these lines which has been issued to the public.

That some special instruction in ophthalmic nursing is necessary goes without saying, and we quite agree with the author's introductory remarks when he states that he has "no hesitation in saying that very many eyes are annually sacrificed in this country through inefficient and careless, or rather, I would say, ignorant nursing. If there is no nurse the surgeon has to do his own dressings, and then matters have a better chance; but in many cases this cannot be done, and he is obliged to rely on the assistance and co-operation of others."

The author has prepared a very readable manual, with most of which we entirely agree. We do not, however, think he is wise (page 5) in recommending a cabinet *lined with cloth* "for the reception of instruments," nor can we approve of (p. 14) the use of *eye sponges* at all. The author, however, partly accounts for his recommendation of them, for (p. 47) he says:—"Personally I am not a great believer in the antiseptic system, which, with all its complicated processes, is gradually being consigned to the limbo of things of the past."

The author is, however, happy in his method of expression, simple in his explanations, and does not encumber the volume with too large an amount of information on subjects that can be more easily and better obtained elsewhere.

We feel sure the book will be greeted as supplying, and supplying well, a real want.

2. The author of this volume, Dr. Sydney Stephenson, also, in his Preface, claims that, "as yet no book has been written on the subject of which it treats." "The little volume is the outcome of instructions given to the nurses at the Ophthalmic School, Hanwell."

While congratulating the author on his book as a whole, and feeling sure that it will prove a great assistance to many nurses in ophthalmic hospitals, and in the special wards of general hospitals, we think it contains so many defects that the author will do well to consider the early preparation of a second edition.

To most readers it will be a surprise to learn that "the pupil" is "part of the lens," and that "the lids are composed of cartilage or gristle." The description of the vitreous chamber is rather confusedly stated; and in the account given of "the famous experiment of Mariotte" *right* is in each case put where *left* is meant, and *vice versâ;* so that anyone trying the experiment as directed in the text must inevitably fail.

The description of the mechanism of accommodation is not very happy. The "ciliary muscle" and the "ciliary body" are mentioned as two separate structures, but only the former gets any description in the text, or place in the diagram.

To those already acquainted with the subject such omissions or misstatements cause no confusion, but in a book intended for nurses, where no previous knowledge of the subject is expected, their presence cannot be too strongly condemned.

In the Glossary—Appendix III.—there are many definitions which we would like to see modified.

Astigmatism is defined as "an optical defect in the eye in which rays of light, instead of focussing at a point, focus at a line." What could a nurse make out of such a definition? No mention is made of the kind of rays.

Presbyopia is said to be "due to weakness of the ciliary muscle." The definition of "stimulus" is "a stimulant," which reminds us of a demonstration we once heard given on the kidneys, which ended by saying: "Such are the kidneys, gentlemen; they secrete the urine, and are called kidneys because of their shape."

On the whole, however, the book is well printed and turned out; it contains fourteen chapters and three appendices. Some of the chapters are excellent, especially those on "Contagion and Infection," "Arrangements for Operations," "Dressings and Bandages," and "Nursing of Different Operations." In fact, had the head and legs of the books been omitted, the *torso* would have elicited little but praise. Unlike Nebuchadnezzar's image, the head as well as the legs are of clay.

By a judicious use of the eraser and certain corrections a second edition might be made a valuable addition to nursing literature.

Clinical Medicine; a Manual for the Use of Students and Junior Practitioners. By JUDSON S. BURY, M.D. Lond., F.R.C.P.; Senior Assistant Physician to the Manchester Royal Infirmary; formerly Assistant Physician to the Clinical Hospital for Children. With numerous Illustrations and Plate in Colours. London: Charles Griffin & Co. 1894. Large 8vo. Pp. 468.

THIS is the latest of the splendid series of text-books which Messrs. Charles Griffin & Company have been the means of placing in the hands of the Profession. The volume well maintains the reputation of its predecessors, and we heartily congratulate Dr. Judson Bury on the excellence of his book and the sterling contribution to medical literature which in its publication he has made.

In a sense unnecessarily diffident of his own powers, Dr. Bury invoked the aid of some able specialists in the writing of his book; and so the section on Laryngoscopy is from the pen of Dr. Thomas Harris, of the Manchester Royal Infirmary and Owens College, while Dr. Robert B. Wild, of Owens College, Manchester, contributes an excellent article on Cutaneous Eruptions (pages 94–126). In his Preface, Dr. Bury further acknowledges valuable help from Dr. Williamson, of the Manchester Royal Infirmary, in the sections relating to the blood, sputum and puncture fluids, and from Dr. Kelynack, also of the Manchester Royal Infirmary, in those on the pulse and temperature.

The work is divided into twelve chapters, or as we would prefer to call them—sections or parts. A brief introduction contains directions for reporting medical cases embodied in a form which is in use in the Manchester Royal Infirmary. In Chapter II. symptoms, for the most part subjective in character, are considered according as they indicate disturbance of the functions of the nervous system, the respiratory and circulatory, digestive and urinary organs respectively. Under the heading "Shortness of Breath" (page 19) there is an interesting allusion to the "laryngeal crises" which sometimes constitute very early symptoms of locomotor ataxy. These attacks of laryngeal spasm, with severe paroxysms of dyspnœa, often closely resemble laryngismus stridulus, while occasionally noisy breathing is accompanied by a spasmodic cough like that of whooping-cough. There are subsequent allusions to the rectal, nephralgic, vesical, and urethral crises of ataxy.

In mentioning three distinct types of delirium (page 17) low muttering delirium is said to be "common in typhoid fever." This is no doubt true of the severer forms of the disease, but typhus is essentially the fever in which low muttering delirium, as distinguished from *delirium tremens* and raving delirium (*d. ferox*), is "common."

Physical examination of the surface of the body, of the skin and its appendages, of the respiratory, circulatory, and digestive systems, of the abdominal organs, of the urine, of puncture fluids, and of the nervous system forms the subject-matter of the succeeding "chapters." The fourth chapter deals with temperature in health and disease. For it Dr. Kelynack is responsible, and it is written in his characteristically clear and succinct style. This chapter is illustrated by fourteen temperature charts, which are models of neatness and beauty. We thoroughly agree with Dr. Kelynack that the "paradoxical temperatures" which have been recorded in neurotic cases are probably—not possibly—fictitious, seeing that in many of these instances associated symptoms of excessive pyrexia were not marked. We know an instance in which a small fortune was spent in replacing clinical thermometers, reading to high values, which a neurotic girl destroyed—whether by entangling their bulbs in her dress and raising the temperature by friction, or by some other effort of her many-sided ingenuity remains an unsolved and unsolvable problem.

To one statement in this chapter we must take exception. Speaking of fever, and presumably typhoid fever, the author says (page 90): "Elevation and persistence of temperature after a period of complete apyrexia is spoken of as a relapse." By true relapse we understand—not a mere renewal and maintenance of pyrexia—but a second attack, in which the characteristic phenomena of enteric fever present themselves in sufficient number to establish the diagnosis of the disease. "By a relapse of enteric fever," writes Murchison, "is understood a second evolution of the specific febrile process, after convalescence from the first attack is fairly established." And surely this definition of relapse applies equally to the other fevers, *mutatis mutandis.*

In describing cutaneous eruptions, Dr. Wild speaks of "the typical 'rose rash'" of typhoid or enteric fever (page 99). We question whether this term should be used, seeing that it is ambiguous. "Rose rash" and "Epidemic Rose Rash" are now official terms—the former is employed to denote a non-febrile efflorescence on the skin; the latter was adopted so long ago as 1882 by the Royal College of Physicians of London to denote "Rötheln" or "German Measles." It is the term by which, ever since the date mentioned, this eruptive fever has been designated in the official reports of the Navy and Army Medical Departments.

We have nothing but praise for Dr. Wild's nomenclature of the secondary and tertiary lesions of syphilis. Instead of creating endless confusion in the minds of inexperienced observers by speaking of syphilitic psoriasis, ecthyma, and so on, Dr. Wild simply describes macular, papular, squamous, annular, vesicular, bullous, pustular, and pigmentary syphilides respectively. Under the heading "Tertiary Lesions" we have, in addition to rupia, nodular syphilide, cutaneous and subcutaneous gummata. The diseases of the skin due to mycelial fungi are well illustrated with the exception of actinomycosis. The list of "drug eruptions" on page 125 is stated to be "abridged from Dr. R. Crocker, 'Diseases of the Skin.'"

The examination of the respiratory system is described at great length and in minutest detail. For it Dr. Bury is solely responsible, and he has acquitted himself well. A suggestion on page 146 strikes us as both original and useful. To become familiar with simple standards, and with the chief variations in the sounds and the tactile sensations of percussion, Dr. Bury recommends the student to go through the following *Exercise*, practising on himself or on a fellow-student:—

> "(1.) Let him percuss the fleshy part of his own thigh, and note its resistance and tonelessness; this is the best example of dulness.
>
> "(2.) Percuss his stomach, this gives *clear*, as distinct from muffled, resonance. Contrast the stomach with the colon as regards pitch.
>
> "(3.) Percuss the right front, and observe the normal muffled quality of the thoracic resonance. In percussing downwards over the mammary region observe the rise in pitch and the shortening of the duration of the note, also the increase in resistance on coming to the liver.
>
> "(4.) Percuss out the cardiac dulness, carefully noting how much of the third and fourth spaces are impaired, reckoning from the left margin of the sternum outwards to the left.
>
> "(5.) Fillip or percuss over the pomum Adami with the mouth open, and note the pure tubular sound; contrast its pitch and duration with those of the right mammary region.
>
> "(6.) Percuss a fellow-student's back close to the spine, then pass outwards, noting the increase of resistance when over the muscles.
>
> "(7.) Percuss the clavicle or the back of the second phalanx; observe that the pitch of this osteal note is higher than the note over the trachea, and that the latter is higher than that over the thorax.
>
> "(8.) Percuss a lung in the post-mortem room, and observe the clear, tubular character of the note."

The examination of the circulatory system, "Chapter VII," runs to upwards of 40 pages. It is particularly well illustrated, especially in the section on the Pulse. The author seems to favour Dudgeon's sphygmograph, which is figured on page 221. Chapter VIII., on the examination of the blood, reminds the reader of von Jaksch's splendid "Clinical Diagnosis," from which indeed its illustrations are taken with due acknowledgment.

Under the heading "Examination of the Digestive System and of the Abdominal Organs," an immense amount of detailed information is given. The morbid conditions of the gums are rather briefly disposed of. The paragraph devoted to this topic opens with the laconic sentence, "The gums often show a red line in phthisis." This remark does scant justice to the theme. Some observers call in question the diagnostic value of the "red line." It is certainly often present in other states than that of phthisis, while in this disease it may, on the other hand, be absent. We are, however, among those who believe in the diagnostic significance of this sign, and we think the author would have added to the value of his very bald statement, if he had inserted the word "early" before phthisis. Besides, a more explicit account of the appearances which constitute a "phthisical red line" should have been given. When enumerating the conditions with which discolorations of the mucous membrane of the mouth are found associated, the author makes special mention of Addison's disease. The discolorations which occur in the mouth in this disease are beautifully represented in the first volume of Dr. Byrom Bramwell's "Atlas of Clinical Medicine."

Chapter X. is on examination of the urine. In its first section the words "polyuria" and "oliguria" are used, but "anuria" finds no place, although it is certainly wanted to complete the sentence: "The quantity is diminished (*oliguria*) or entirely suppressed." In this chapter the chemical examination of the urine has ample justice done to it. Fuller detail, perhaps, is needed here and there. For example, when speaking of cystin, no allusion is made to its relationship to sulphur or to the fact that cystinuria is a bacterial disease, although apparently of a non-infective character. Sulphur is found in the urine in five forms—(1) as sulphates, (2) as ethereal salts—*e.g.*, sulphocarbolic acid, (3) as alkaline sulphocyanates, (4) as unoxidised (neutral) sulphur, and (5) sometimes as cystin ($C_6H_{12}N_2S_2O_4$). Diamines are often present in cystinuria and in cholera also—

the principal being penta-methylene-diamine, or "cadaverin," and tetra-methylene-diamine, or "putrescin."

Throughout this part of his work Dr. Bury speaks rather loosely of mucus, mucin, and "mucoid" casts in urine.

Chapter XII., on the examination of the nervous system, runs to 106 pages. It fitly concludes this excellent work with a full account of the anatomical and physiological facts which bear on diseases of the nervous system, and of the symptoms of this group of diseases. The disorders of muscular action, of sensation, of reflex action, of language, and of the special senses, are all discussed at length. As throughout the work, so here also the number and good quality of the illustrations call for laudatory notice.

Lunatic Asylums: their Organisation and Management. By CHARLES MERCIER, M.B. London: Griffin & Co. 1894.

DR. MERCIER has done work of so excellent an order in psychology that his friends may perhaps be pardoned if they felt some apprehension when they found him breaking new ground, for, indeed, it was hardly to have been expected that the author of "The Nervous System and the Mind," "Sanity and Insanity," and many articles and reviews dealing in the most brilliant style with some of the most abstruse problems of psychological medicine, should, within a couple of years, have brought out the best text-book on the nursing of the insane which had yet appeared, and the only work on the management of asylums which has been published in England since the days of Conolly. Yet the excellence of these later works is such as in no way to dim the lustre of the author's earlier reputation. Indeed, the thoroughness with which these useful and practical subjects are treated, and the careful adaptation of the style to the matter of the books, show in a very remarkable way Dr. Mercier's versatility of intellect and great command of literary resource.

In the Preface to the work before us we are told that "to advocate uniformity of practice is no part of its object," but that it is desirable that "there should be agreement as to main principles." But what are "main principles" in this branch of practice? One which is laid down repeatedly in this volume is, in our opinion, of the very first importance:—"To lodge the insane in a palatial building, to keep them warm and clean, well clothed, well fed, occupied and amused, all this is most excellent and admirable. Contrasted with the ancient treatment of whips and fetters, it seems perfect. But . . . the amplitude of these material comforts must not blind us to the fact that in spite of them a large proportion of our patients are wretched. They are wretched because they are deprived of that most precious of all possessions—their liberty." That the insane cannot enjoy their full liberty is obvious; as much liberty as each individual patient can be accorded with a view to his own and others' safety is his due. "All the arrangements of the asylum will be made with special reference to the individuality of the patients, and will be rendered modifiable and adaptable to suit their individual needs. Management of patients by the gross will give way to management of the individual, and the object of the management will be to approximate the life of the insane to the life of the sane, as far as approximation is possible. This is the direction in which the management of the insane is tending, and it is in recognition of this tendency, and to help it forward, that this book has been written." Perhaps Dr. Mercier's reference to "palatial asylums" indicates that he is further in advance of the times than he directly claims to be. It is probable that the day for the erection of palatial asylums is nearly over, and those who are responsible for the construction of asylums would do well to recognise the current of the stream of tendency in this matter and to open their eyes to the fact that in a few years' time it will be universally acknowledged that the huge asylums of to-day are a medical as well as an economic blunder. However, our author does not say so much. It may be that in this reticence he is right. Even the doctrines which he does advance are not as yet food for babes. "There is much here set forth," he says, "that will be derided as impracticable." He may console himself, if he smarts under this derision, with the reflection that everything is impracticable till it is done. Nothing tells this tale more significantly than the history of the treatment of the insane. To-day, "restraint" has not a respectable advocate in the world; yesterday, "non-restraint" was impracticable on the Continent; the day before, it was impracticable in England.

"In the construction of the building much can be done to facilitate observation and treatment by providing for the separation of the patients into small groups, and by the absence of wards in which large numbers of patients must be aggregated together.

In nothing is the treatment of insane persons so defective as in individuality—in the close attention to, and the study of, individual cases. They are dealt with far too much in the mass, and to this method of treatment are ascribable most of the deficiences, of the accidents, and of the untoward events which continuously exist and from time to time occur in lunatic asylums. . . . There is, in my opinion, no influence, and no combination of influences, that is capable of effecting anything approaching to the beneficial result upon the lives and malady of insane persons, that could be effected by this one of greater individuality in the study and treatment of their cases; and great individuality of treatment is not to be attained so long as the structure of asylums provides only for treatment of the insane in bulk." The influence of mind on mind, or, if the term be preferred, of brain on brain, is one of the only ways we have of getting at mental disease. It is a medicine which often fails, it is true; but is not the same to be said of most other medicines in this as in every other class of diseases? Of course individual care does not mean only the influence of the sane upon the insane mind, though this is a large element in its utility. It is an old observation that an attack of some intercurrent (so-called "physical") disease often appears to cut short an attack of insanity. The action of the intercurrent affection is probably highly complex, but we are satisfied that one, and no inconsiderable factor, in the beneficial result is the more individualised care which is bestowed upon the person of unsound mind, who is also suffering from some acute "physical" affection.

Dr. Mercier recognises that the question of large *versus* small asylums and wards has an important economic aspect. "The question is very largely a question of expense, and there is no doubt that the aggregation of patients together in large wards, and the aggregation of large wards into huge asylums, has much to be said for it on economical grounds." It is to be expected that small palaces will probably be proportionately more costly than larger ones. Even here, however, there are other factors to be considered than the mere question of size. It is notorious that for many years the huge Middlesex asylums, being managed as strictly as possible on non-medical and on "economic" principles, were the most expensively conducted, as well as probably the worst, institutions of the kind in their country.

Dr. Mercier does not take into account the experience of the founders of the magnificent institution at Alt Scherbitz, where the principle of small wards has been carried out very fully, and where the asylum consists of a collection of entirely detached houses. This asylum, which is rapidly becoming the model for Continental institutions for the insane, appears to be less costly in working than English asylums, while its initial cost reckoned per capita on its population was little more than half that of the modern English asylums. The different conditions of labour, price of materials, &c., does not account for this, since the Berlin asylum at Dalldorf, the nearest German approach to the English palatial asylum, cost even more per head than any English asylum.

Dr. Mercier's views as to construction are shortly indicated in the following passages:—"I think that wards containing more than thirty patients should, in ordinary asylums for all forms of insanity, be rare." "As to the general plan of the building, there has long been a struggle between the two types known respectively as the 'gallery' type and the 'pavilion' type of building; but into this it is not necessary to enter, inasmuch as the matter is now practically decided in favour of the latter."

The author holds the cheerful opinion that sanitary knowledge is generally diffused among the population, and therefore he does not here discuss questions of ordinary sanitation. Rightly so, no doubt, as there is little or nothing specific in asylum sanitation, using the word under the familiar limitations.

A chapter is given to general arrangements—treatment of walls, floors, windows, locks, heating, lighting, water, &c.; another to wards (construction and furniture), and ward offices, while others deal with the administrative portion of the buildings, the care of the grounds, &c.

The second part of the work treats of food and clothing of patients, the third of their occupation and amusement, the fourth of detention and care, and the fifth and concluding part deals with the asylum staff.

The book is characterised everywhere by a minuteness of observation not surpassed since Swift wrote his "Directions to Servants," and in many places by great shrewdness and originality. Here and there, there is a certain want of balance in the apportionment of space to the importance of the subjects dealt with. Thus the "Accommodation of the Staff" is disposed of in less than two pages; while "The Repairing of Books" (which by a thoroughly English arrangement falls under the duties of the chaplain) occupies between five and six. The author occasionally shows a preference for arrangements not quite modern without giving much explanation, so as to suggest that in details he is liable to be prepossessed by what he is himself accustomed to, though he generally states plainly his reasons for the faith that is in him. He makes minute and excellent observations about asylum locks, but he makes no reference to the large extent to which unlocked doors are used in many asylums nowadays. "All locks should be spring locks, unless there is some definite reason to the contrary;" but there always is, in the intolerable door-banging that will take place in an institution with numerous doors provided with spring locks. The old tiger-cage fire-guards are rightly scorned, but is it true that "in most wards" properly constructed fire-guards are "a very necessary precaution"?. On the contrary, in many asylums it has been found quite easy to dispense with them altogether, save in the wards for epileptics and infirm old people.

Again, to us as reviewers the airing court, even though as beautifully planted and cared for as Dr. Mercier could desire, is a wrong thing in principle and a danger in practice. The grounds of an asylum ought to be large enough to afford a variety of roads on which all the robust patients can walk on Sundays and holidays, and all the robust patients who will not work can walk every day. If constant walking during outdoor hours sounds too like pack drill, the walks can be provided here and there with wide spaces with seats where a halt may be called, or now and again patients and attendants may turn loose in a large field and briefly enjoy such aimless wandering as is possible; but the airing court, whether used for

> "Dull mechanic pacings to and fro,"

or for the listless lolling on a bench, is usually but a cloak for neglect and a nicely-arranged form of doing nothing, which is, after all, a villainous mode of "occupation" or "amusement" for anybody.

The observations on food and its preparations are up to date, practical, and humane. We commend to the attention of asylum "governors" the following sentences:—"The healthfulness of a variety of food is allowed by the best authorities; but beyond its healthfulness, its desirability is beyond doubt. If the least crapulent of the managers of asylums will picture to themselves the monotony of a diet which admits of but seven changes—one for each day in the week—and the consequences to the appetite of knowing every day for a certainty exactly which of these few varieties will be available, however little addicted he may be to the pleasures of the table, he can scarcely fail to see how disgusting this arrangement must become." We dread the thought of Dr. Mercier's indignation should he ever learn that in one of the British Islands a patient in a public asylum can generally foretell his dinner for a year or two, or ten, beforehand, since it consists of boiled beef five days in the week, and nothing at all the other two days! On the whole, perhaps Dr. Mercier's comments on the butterless bread served to Irish patients with their tea at breakfast and supper might be more agreeable, even if more pungent, than those in which the patients themselves indulge. As no class above mendicancy eats meals of dry bread, as everybody eats butter "of sorts," fresh or rancid, genuine or margarinical, it is not easy to see why the unfortunate lunatic should be thus stinted, unless on the venerable old principle that insanity is mere "cussedness," and that the insane should be subjected to severe punitive and repressive measures. In England, where such views do certainly not prevail, and where the diet is generally very plentiful, its monotony can only be due to a not very creditable apathy on the part of the authorities.

Dr. Mercier's observations on the staff of asylums are generally excellent. They are occasionally a little too detailed, but it cannot be said that they are ever trivial. With reference to the question of supremacy he is fundamentally sound. He rightly insists that "*power and responsibility cannot be separated.*" He who is afraid to accept responsibility cannot claim power, and those who do not give power cannot impose responsibility. This is constantly forgotten by those who are most anxious to curtail the powers of the head of an institution, but never fail to try and fix upon him that responsibility which they dare not take upon themselves. With regard to the medical superintendent, Dr. Mercier's views are the more valuable as he is evidently afflicted with no prejudice in favour of these officers. Indeed he must be regarded somewhat in the light of a hostile witness, for he seems distinctly to see in the ordinary weaknesses of humanity, as they appear in medical superintendents, the signs of a special depravity peculiar to their class. He talks kindly of most asylum employés, but not of superintendents. While we are led to infer that their assistants are young, brilliant, and full of enthusiasm, superintendents somehow seem to be generally fogies, and the little eccentricities which they, like all men who live in isolated positions, are apt to acquire are treated with more contempt and less pity than is quite philosophical. The difficulties of their position are hardly sufficiently allowed for, even their troubles with their assistants, who are not unfrequently lazy, who are sometimes actually failures, and now and again fogies. Nevertheless, Dr. Mercier is too clearsighted not to see that for the proper conduct of an asylum, and for the safety and successful treatment of the patient, there is no *via media;* "that there can be but one captain of a ship, and one person in supreme control of a large institution;" "that the safety and treatment of the patients, for which the medical officer must always be primarily responsible, are bound up so intimately and in so many ways with every portion of the asylum and everything in it, that it is impossible to deprive him of any authority within its precincts, without at the same time restricting his opportunities of doing them good or preserving them from harm." Everyone who knows anything of asylums knows the truth of these remarks. Institutions where authority is divided are always illmanaged, expensive, uncomfortable places, where little progress is made and little work is done—where the patients suffer much in happiness and ease, and the staff themselves are quarrelsome, discontented, demoralised, and miserable.

The book is full of useful information. Its author neither claims infallibility nor seeks to establish uniformity. Therefore he cannot be surprised that practical workers often differ from him in detail. His work should be in the hands of everyone who is interested in the organisation and management of asylums.

The Technique of Post-Mortem Examination. By LUDVIG HEKTOEN, M.D., Pathologist to the Cook County Hospital, Chicago; Professor of Pathologic Anatomy in the College of Physicians and Surgeons of Chicago. With Forty-one Illustrations. Chicago: The W. T. Keener Co. 1894. Pp. 172.

THIS is an excellent handbook for the *post-mortem* room: it is clearly and carefully written, and gives a full account of the subject. The author first describes the kind of room the examination should be made in, and the record which should be kept, especially in medico-legal cases; then an account is given of the most useful hardening reagents for preparing specimens for microscopic examination. The weights and sizes of the various organs are given according to the metric system (we regret that these statistics were not also in inches, ounces, &c., for the benefit of those to whom metric weights are not familiar). The most useful kinds of instruments for making the *post mortem* are described and fully illustrated. Then a systematic account of the examination is given; several illustrations, representing various stages in the process, are reproduced from photographs and are extremely realistic. The work concludes with chapters on the examination of new-born children and in cases of poisoning.

On one point in the examination of the heart we differ from Dr. Hektoen: we hold that the fingers should never be inserted into the mitral and tricuspid openings, to ascertain their size, until the heart has been removed from the body and has been carefully inspected. If the fingers be roughly thrust into the orifices delicate vegetations and membranes, especially in malignant endocarditis, may be seriously disturbed or injured.

We can warmly recommend Dr. Hektoen's book as a first-class manual of *post-mortem* work.

Myxœdema, Cretinism, and the Goîtres, with some of their relations. By E. T. BLAKE, M.D., M.R.C.S. Bristol: John Wright & Co. 1894. Pp. 89.

DR. BLAKE is pre-eminently a believer in toxins. He holds that Graves's disease in women is an autotoxis most often caused by the absorption of purulent products, that process being aided by the toxins of terror or shock. He holds, moreover, that the same toxins produce rheumatism, myxœdema, Addison's disease, and chorea. Everything with him is an intoxication. We read of "nautical intoxication"—fortunately the term is translated, or we should not have guessed sea-sickness was meant.

Some of Dr. Blake's arguments seem rather to despise the laws of logic. Is not the following a very good example of *petitio principii?*—"The most approved remedies for goître are either germicidal or antitoxic; I have only to name iodine, iron, belladonna, and quinine; that belladonna has antitoxic properties I cannot doubt." Such arguments may be quite conclusive to Dr. Blake's mind, but to ours they bring no conviction. Indeed, the term "toxin" itself, when used so vaguely, is far inferior to the "peccant humours" of our forefathers; the latter term has, at least, the halo of antiquity wherewith to veil its nakedness.

We, therefore, are unable to follow Dr. Blake's views, and we can only hope, in the modest terms of his preface, that it may be along these lines (*i.e.*, the views he has put forward) "that the campaign will probably be pushed."

Examination Questions in Practice of Medicine, with Answers. Part II. *Skin Diseases.* Adapted for those preparing themselves for the Final Examination. By "*Utile Quod Facias.*" Pp. 68. Edinburgh: E. & S. Livingstone.

THIS little booklet gives, perhaps as well as its limited space permits, the headings of the symptoms, causes, and treatment of the principal cutaneous affections. Of course, the study of such a wide department of medicine and surgery as that which deals with diseases of the skin, can be but poorly represented by the mastering of the contents of such a pamphlet as the one before us. Still we must give the writer credit for having made a fairly judicious selection from the enormous mass of material which he had to sift. The information given under the headings of treatment is often very good indeed. The booklet will be of use for the class of readers for whose benefit it was professedly prepared.

A Practical Hand-book of Midwifery. By FRANCIS W. NICOL HAULTAIN, M.D. London: The Scientific Press, Limited. 1893. 8vo. Pp. 242.

THIS work calls for more than a passing remark. It is a well-bound hand-book, containing 242 pages of good type, and comes well within the definition of pocket series. Nevertheless, its author may fairly lay claim to have omitted from its pages none of the important facts of midwifery. We are certain it will prove useful to advanced students who have already studied midwifery in the larger text-books. Practising obstetricians and midwifery teachers will find within its pages information that with difficulty can be obtained elsewhere, and there are few, we believe, who could fail to obtain instruction from its perusal.

We, however, would be very sorry to be understood as recommending this work to students who are not already well acquainted with the subject treated therein. Information is placed dogmatically in a tabulated form, and no indication given as to what is or is not still a matter of controversy. In such a work the student is discouraged from all efforts to exercise his reasoning faculties, and throughout the book we cannot find any explanation given as to why the treatment named should be preferred to any other.

Under the circumstances it is not surprising to find ourselves differing from the author in many of his statements, but in fairness we must add that in every statement he has made good authority can be cited in its support.

Difficult Labour; a Guide to its Management for Students and Practitioners. By G. ERNST HERMAN, M.B. Lond.; F.R.C.P. London: Cassell & Co. 1894. 8vo.

WE can strongly recommend this work to the perusal of midwifery practitioners, and believe that a want has been supplied by its publication. Almost every complication arising in midwifery practice receives notice in its pages. The author, though mentioning many different kinds of treatment, yet never for a moment leaves it doubtful as to the special plan he himself deems it advisable to pursue under any given circumstance.

The causation of all the abnormal presentations receives due notice. Special attention is given by the author to pelvic deformities. We are surprised that no mention is made of Bullett's pelvimeter—an instrument that enables us to take measurements of the cavity of the pelvis with great accuracy.

The work is profusely illustrated, many of the cuts showing artistic merit much above the average.

By far, in our opinion, the greatest defect in this book is the almost entire absence of advice as to the means of ensuring asepsis in private houses, when carrying out the many operations described. That this is an omission that may be answerable for the lives of patients we cannot for a moment doubt, knowing as we do how difficult it is to persuade men qualified a few years ago that thorough sterilisation, though difficult, is yet quite possible to achieve under almost every circumstance, and represents a diminished death-rate.

In the treatment of adherent placenta, for instance, no mention is made of a preliminary cleansing of hands, wrists, arms, vulva and vagina, and yet it was mainly by neglecting these precautions that Dr. M'Clintock's death-rate amounted to 1 in 7 when dealing with this complication.

In the treatment of *post-partum* hæmorrhage the author advises a hand to be placed in the uterus, and then if the hæmorrhage does not cease hot douching is to follow. Surely it would be preferable to employ the hot douche before inserting the hand, as by this means the vagina would be made aseptic, and the hæmorrhage be probably controlled.

Dr. Herman, we think, exaggerates the difficulties which surround the operation of suturing a recently lacerated perinæum. He writes—"Put the patient on her back and administer ether or chloroform. You cannot in any other position see what you are about, or bring the sides of the rent accurately together. When the patient is under the influence of an anæsthetic have the thighs bent up and held apart," and so on. It will thus be seen that Dr. Herman does not intend this operation to be undertaken single-handed, and the description, we think, will tend to discourage men from diagnosticating this complication.

Now we are in the habit of suturing these tears before the after-birth has come away ;with aseptic catgut, the patient lying on her left side, and not under the influence of anæsthesia. Moreover, we have frequently seen these patients ignorant of the fact of having been stitched, and believing that the pain suffered was due to the coming away of the placenta.

We are surprised that forceps is recommended as the best means of extracting a living child in difficult after-coming head cases. To apply them without complete disinfection we hold to be highly improper, and to resort to the tardy methods necessary to obtain this result would be but to trifle with the life of the child. Furthermore, we agree with Winckle in his statement that pressure on the fundus of the uterus, combined with traction by the fingers in the mouth, will deliver a living child with greater certainty than can be obtained by any other method, nor do we think it open to the objection urged against it by Dr. Herman—viz., pressure on the fundus of the uterus has a tendency to increase the diameter of the head by causing it to become flattened.

The author speaks in an enthusiastic manner of Champetier's bags as a means for causing the cervix to dilate, and we dare say they possess some advantages over the older bags of

Barnes. We, however, altogether deny the importance of either one or the other variety in obstetric work.

In only the barest minority of cases will danger arise to either mother or child when the os is not in a condition of full dilatation. Emptying the bladder and rectum, the administration of chloral, combined with one or two hot vaginal douches, will, in the large majority of cases, be sufficient treatment for uterine inertia in the first stage.

In the very rare cases where more active measures are called for, the safest and quickest plan of procedure will be to slit up the cervix at either side, and afterwards close the rent by suture. The old method of dilating the cervix by plugging the vagina is still a very excellent one, provided it be done in a cleanly manner. The plug will reflexly bring about the dilatation of the cervix without removing the delicate epithelium from its surface, the integrity of which is a very great safeguard against septic infection. And we hold that this epithelium is removed in large part by the introduction of any form of bag.

The chapters on contracted pelvis are very good, and this may also be said of by far the greater portion of the work.

The author is right in being dogmatic in such a work, but of course lays himself open to criticism thereby.

There are few so learned who cannot receive instruction from the perusal of this book, and we confidently predict that it will not fail in the object for which it was written.

The Student's Hand-Book of Medicine and Therapeutics. By ALEXANDER WHEELER, L.R.C.S. & P. Ed.; Clinical Assistant, Edinburgh Royal Infirmary. Edinburgh: E. & S. Livingstone. 1894. Pp. 396.

DR. WHEELER has succeeded in producing an excellent introduction to practical hospital work for students. It contains in remarkably clear and simple language an account of the symptoms, causes, physical signs, &c., of medical diseases; it contains short descriptions of the anatomy and physiology of the organs or systems affected, in order that the student may learn to *think out* the symptoms likely to be present in any given case, and not to learn them off like a parrot. The section on diseases of the nervous system is especially well illustrated by diagrams. Many important points are emphasised by being put in tabular form; thus we find in parallel columns the contrast between bronchitis, catarrhal pneumonia, croupous pneumonia, pleurisy, and acute phthisis. The modes of physical examination—*e.g.*, of the urine and the stomach—are clearly described.

As a rule we have a great objection to short books on medicine. They are usually just full enough to delude the student into the idea that he need not procure a larger work, and at the same time they are dangerously incomplete. The work before us is not open to these objections. It can only be taken for what it purports to be—viz., an introduction to clinical work—a book for a student to read when he begins to attend his hospital, and to which he can apply for information about that new world of names which he finds in the clinical wards. As such we can cordially recommend it to him. The price (10s. 6d.) may possibly seem to him high for not a very large book; but we can assure him that Dr. Wheeler's work, if used aright, will prove to him a most valuable investment.

Nuovo Metodo di Cura della Tubercolosi Polmonare. Per il dottore CARASSO GIOVANNI MICHELE, Tenente Colonnello Medico, Direttore dell 'Ospedale Militare di Genova. Roma. 1894. Pp. 102.

LIEUT.-COL. MICHELE has reprinted in pamphlet his paper on a new treatment of pulmonary tuberculosis, which appeared in the *Giornale Medico del Regio Esercito e della Regia Marina.* He reviews the results of treatment by the method attributed to Koch, by creasote and its derivatives, by hypodermic injections of various substances, by surgical procedure (as employed by Ruggi), by galvanism, and by inhalations, and decides in favour of the last, which has not hitherto been so successful as it deserves to be, owing to the "complexity and imperfection of the methods and apparatus." His own method is described in detail. The vapour inhaled being derived from *essential oil of peppermint.* As subsidiary treatment, a mixture is exhibited containing the same essence, creasote, rectified spirit, glycerine, and chloroform. As a result, from the treatment of thirty-two cases in this manner, the author concludes that "Koch's bacilli disappeared from the sputa within a period ranging from 10 to 60 days; this disappearance being invariable, unless the patient died shortly after the special treatment was begun;" that "all those affected with pulmonary tuberculosis, uncomplicated with tubercular affections in other organs, who were subjected to this method of treatment, except when thorough penetration of the mint essence was prevented by extravasated blood, were perfectly cured, not only in the first stage of the disease, but also in more advanced stages, even when the physical signs of cavities were clear;" and that "none of those cured presented any morbid physical signs, nor did examination of their sputa detect any of Koch's bacilli."

Army Medical Department Report for the Year 1892. With Appendix. Volume XXXIV. London. 1894. Pp. 425.

It is difficult to feel, or even to assume, interest in an annual report which is published eighteen months after date. There are, however, two or three subjects which may deserve brief notice. It is interesting, for instance, to watch the progress of venereal diseases, which Parliament has taken under its special protection. In 1892, the admission rate under this head, in the United Kingdom was 201·2 per 1,000; constantly sick, 16·46—an increase of 3·8 and 1·12 over the ratios of the previous year. The services of 1,650 men were neutralised from this class of preventable diseases. In India, ignorant interference with sanitary measures has been even more disastrous. In the Bengal army alone 1,266 men were inefficient from venereal diseases. The rate of admission was 380·8 per 1,000; of constantly sick, 30·0. In Madras these ratios were 385·9 and 34·39; and in Bombay 362·1 and 25·32.

The condition of the adult male population, as regards vaccination, is probably represented by that of recruits finally admitted into the service. Of these there were 42,806; 967·0 per 1,000 had marks of vaccination, 5·8 had marks of small-pox, 27·2 had no marks of either.

"The Celts are gone with a vengeance"—as far as the British Army is concerned. Of 68,761 recruits inspected in 1892, Ireland contributed but 126 per 1,000; Scotland, 85; and England and Wales, 777. As to height, the largest number (8,642) of recruits "finally approved for service" measured 5 feet 5 inches to 5 feet 6 inches; 8,512 were between 5 feet 4 inches and

5 feet 5 inches in height; 4,103 between 5 feet 3 inches and 5 feet 4 inches; and 1,522 were under 5 feet 3 inches. In chest-measurement the largest number (13,167) were 33 inches to 34 inches; 12,575 were 34 inches to 35 inches; 1,277 were under 31 inches.

The usual appendices follow the report. No less than 66 pages, out of 145, are occupied with Surgeon-Captain W. G. Macpherson's "Medical Report on the Mission of Sir C. Euan-Smith to Fez in 1892." The fact is significant, and seems to indicate a conviction, on the part of the military authorities, that annexation (for the benefit of the Moors, of course) is in prospect. The usual preliminary heart-rending descriptions of the sufferings of the people under their native rulers are beginning to appear in the periodicals. Surgeon-Captain Whitehead's Clinical Lecture on the Influence of Myopia on Military Service is interesting, and his elaborate demonstration of the unsuitability of spectacles to the British warrior (although the German soldier does pretty well with them) is not a little amusing.

Bèri-Bèri: Its Etiology, Symptoms, Treatment, and Pathology, with an Appendix containing a Detailed Account of 52 Cases, and the Morbid Appearances seen in 19 Post-mortem Examinations, with Characteristic Illustrations of the Disease. Being a Thesis submitted for the M.D. Degree of the University of Edinburgh in 1889. By ARTHUR J. M. BENTLEY, M.D. (Gold Medallist), M.B., C.M., M.R.C.S. (Eng.); Emeritus President, Royal Medical Society of Edinburgh; Formerly Colonial Surgeon, Straits Settlements; Medical Adviser to the Johore Government, and Physician to H. H. the Sultan; Physician to the Lock and Chinese Hospitals; and Visiting Physician, Leper Hospital, Singapore, &c., &c. Published for the Author. 8vo. Pp. 245. Edinburgh & London: Young J. Pentland. 1893.

THIS is a carefully prepared and very interesting thesis on the still somewhat mysterious disease of bèri-bèri. The author has already been a well-known authority on the phenomena of this affection. He has illustrated the present treatise with ten instructive and beautifully clear reproductions of instantaneous photographs of bèri-bèri patients in attitudes characteristic of the typical stages of the disease. The phenomena of bèri-bèri are always the result of a specific micro-organism originally generated in the soil. This organism demonstrates the effects of its presence by a specific action on the nervous system, which is characterised at some time by great muscular wasting. As the author's experience of the disease accumulated, he became specially impressed with the spasmodic nature of the disease, and with the pronounced anæsthesia of the upper lip which accompanies it. In all the *post-mortem* examinations the heart was found enlarged.

A selected bibliography of bèri-bèri, occupying two pages, is prefixed to the thesis. It is arranged chronologically—from Heymann's paper, which appeared in Virchow's Archiv. in 1859, down to the literature of 1893. The writer has evidently taken full pains to utilise the opportunities for practical observation of the disease which his Eastern experience afforded him. He has had cases brought under his notice "since 1873, when it caused such ravages amongst the Dutch troops, then and still at war with the Sultan of Achan, in the north end of the Island of Sumatra." But it was not till the year 1880 that he had full opportunity for becoming "more intimately acquainted with its nature and symptoms." At that date, when the author was practising as Colonial Surgeon in Singapore, an epidemic outbreak occurred in the criminal prison of that island, from which it gradually radiated to the adjacent districts, "until it became generally endemic in the Straits Settlements and surrounding countries."

This volume will certainly be perused with great interest by all practitioners who are interested in so formidable and so widespread a disease. "Bèri-bèri prevails endemically in Ceylon, Japan and India, especially on the Malabar coast, and in the Northern Circars and China, and over the whole Malayan Peninsula (where most of the cases reported in this thesis occurred). It is common also in Burmah, as also amongst ships' crews on the Persian Gulf, Red Sea, and African coast, in the Bay of Bengal, in Siam, the Straits Settlements, the Malay Archipelago, in the Australian Seas, on the West Coast and other parts of Africa (where it is erroneously known as the 'sleeping sickness') and, lastly, it is met with in South America." A disorder which plagues the inhabitants of so large a portion of the earth's surface is certainly deserving of careful study. The author regrets that, from his "circumstances as a busy practitioner," he was unable to "elaborate histological and pathological research." We regret their absence; but we hail with pleasure the valuable clinical descriptions and reflections which he has placed at our disposal, and congratulate him on his earnest industry and powers of observation.

Universal Poison-Labels. By MAJOR G. F. GAMBLE, Dublin: 1894. Pp. 10

MAJOR GAMBLE calls attention to the large number of accidental deaths which occur from poison, and suggests that all poisons should be compelled to have a red label bearing a skull and crossbones and the word "poison." A sample "registered" label is attached, but we fail to see how it varies from the ordinary poison label sold by dealers. No label will prevent mistakes at night. A universal fluted or misshapen poison bottle would be more likely to be of use.

On the Use of Opium in India: being a Summary of upwards of One Hundred Reports to the Parliamentary Bills Committee of the British Medical Association, received from Medical Officers and Civilians resident in all parts of India. Prepared by ERNEST HART, D.C.L.; Chairman of the Parliamentary Bills Committee of the British Medical Association; and Editor of the "British Medical Journal." London: Smith, Elder & Co. 1894. 8vo. Pp. 31.

OUR lively contemporary was better employed, we are inclined to think, in collecting and compiling the evidence which this pamphlet summarises, than in attempting to put down the time-honoured practice of labial osculation. Few, who have even a rudimentary acquaintance with Indian life and Indian modes of thought, had any doubt as to what the opinions of experts on the Opium Question would be. Here we have those opinions stated, and our expectations have been fulfilled. Almost a year ago eight queries were circulated to Indian officials, the most competent to supply trustworthy replies. "No selection was made of the individuals to whom these queries were forwarded, and their replies have been impartially summarised." We cannot still further summarise a summary; we recommend our readers to study it for themselves; we shall only note a few of the conclusions which the evidence justifies.

The consumption of opium to excess is uncommon in India—with China we are not at present concerned—and the ordinary use of the drug is harmless, especially to those who labour out of doors. Whether it is positively useful, as a prophylactic against malaria and other miasms, is still uncertain; but the preponderance of medical opinion is in favour of the affirmative. To the question whether opium-eating in India is comparable for mischief with alcohol-drinking in Europe, there is an "almost absolutely unanimous" chorus of negatives. Were the use of opium suppressed by *force majeure*, the last state of India would be infinitely worse than the first. "There is no nation on the earth, no class, and, perhaps, no individual who does not take a stimulant of some kind, and to assume that the hundreds of millions of the population of India would step forward as one man, and with one voice spontaneously take a solemn vow to refrain from all stimulants, including alcohol, hemp, tobacco, tea, opium, coffee, is an utterly chimerical idea, which could be entertained only by a philanthropic dreamer. As to the nature of the probable substitutes our correspondents are not unanimous, but they all agree that whatever substitute may prove the most palatable to the native, and the most fit to replace the effects, it will prove to be a very disastrous exchange." We are not surprised to learn that a considerable number of the natives of India have come to the conclusion that alcohol would replace opium, and that this substitution is the root of the British anti-opium agitation. The liquor-interest is at the bottom of it; even as the cotton-interest has compelled the exemption of cotton goods from import duty, to the serious detriment of the Indian revenue, Into the politics of the question we do not enter. We close with a hackneyed quotation—"*Quem Deus vult perdere prius dementat.*"

The Diagnosis of Diseases of the Nervous System: a Manual for Students and Practitioners. By C. A. HERTER, M.D.; Physician to the Class of Nervous Diseases, Presbyterian Hospital Dispensary. New York: E. P. Putnam's Sons. 1894. Pp. 628.

THIS book, after chapters on the structure and functions of the nervous system, and on the meaning of certain symptoms, discusses at considerable length the diagnosis of the locality and the nature of a lesion; thus a brief account is given of each variety of disease, and finally there is a chapter on the distinction between functional and organic disease.

We are not very favourably impressed with this work. It appears to us mainly to consist of a rather rambling account of the symptoms of diseases of the nervous system, written in a manner that is neither bright nor striking, and the effect on the mind is somewhat confusing. There are some illustrative figures, but they are mostly poor.

The Blind as seen through Blind Eyes. By MAURICE DE LA SIZERANNE, Director of the "Valentine Haüy Conferences;" Founder of the "Braille Library;" Editor of the "Braille Review" and of the "Valentine Haüy;" Author of "Ten Years of Study and Work for the Blind," &c., &c. Authorised Translation from the second French Edition. By F. PARK LEWIS, M.D., Member of the Board of Trustees of the New York Institution for the Blind. London and New York: G. P. Putnam's Sons. 1893. Pp. 154.

M. DE LA SIZERANNE, the author of this little book, is a gentleman of independent means, who, having lost his sight at the age of nine, has devoted his life to the amelioration of the condition of his fellows in privation. Educated in the National Institution for youthful Blind, in Paris, he taught music there, after his graduation (in 1877), until his health failed, when he took up other work for the cause which he had at heart. The system of abbreviated orthography which he proposed for the blind has been adopted in France, Switzerland, Belgium, and Canada; and with modifications in Germany, Italy, and Spain. The work before us, a very small portion of the fruit of his literary labours, received the approval of the French Academy in 1889, and has been translated into Russian. Of the translation into English we shall not say "*traduttore traditore*," but it might have been better done. Those who desire to know "who are the blind that are being educated, how they are educated, and what they are taught" will find much to interest them in M. de la Sizeranne's pages. In France alone there are 32,000 blind, in Europe 200,000, in the world nearly two million. In this great field Valentine Haüy began to work nearly a century ago, and to an account of what he was, and what he did, nearly fifty pages are devoted. To him, and to his able and zealous successors, thousands of a most afflicted class are indebted for training and education, and for the power to lead active and useful lives.

In his chapter on the intellectual instruction of the blind, our author describes—not always very clearly, it must be confessed, if we may judge by the translation—the successive improvements in the system by which they are enabled to read and write. Haüy had the ordinary Roman characters printed in relief, of sufficient size to be distinguished by the touch. Reading was easy, writing very difficult. In 1819, Charles Barbier, an artillery officer, invented his "Ecriture Nocturne," in which thirty-six combinations of points, produced on tough paper with a blunt instrument, sufficiently represented the sounds of the French alphabet. Louis Braille improved upon Barbier's invention. He took as the basis of his system "six points arranged in two vertical lines . . . . These points can be formed into sixty-three combinations, by the aid of which can be represented all the alphabetical signs, letters, accents, and marks of punctuation, all the numerals, all algebraic symbols, musical characters, and stenographic signs." We spare our readers the description of the apparatus which he invented for facilitating the writing of his alphabet. It is positively asserted that a blind child can learn to read and write by the Braille system "in less time and with less effort than those who see." Such is the merit of Braille's method that it, or the American modification of it, is rapidly superseding the older systems.

ANTIDOTE TO MORPHIN.

THE *Hospital* informs us that a young physician in New York drank three grains of morphin dissolved in water, and then a dose of permanganate of potassium, without ill result. The experiment was public, made to demonstrate the efficacy of the antidote.

THE CLINICAL JOURNAL.

THIS weekly, with which we were until recently unacquainted, is published in London, and has reached its third volume. The number before us contains two clinical lectures, a case of double ovariotomy and a few notes and formulæ. We observe that clinical lectures by the leading physicians and surgeons of Great Britain and Ireland have appeared in previous issues of the *Clinical Journal.*

PART III.

SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.[a]

By Sir Charles A. Cameron, M.D.; D.P.H., Camb.; M.R.C.P.I.; Ex-President, Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.; President of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee.

RELATION BETWEEN DIPHTHERIA AND SUBSOIL WATER.

Dr. Matthew A. Adams, Medical Officer of Health for Maidstone, read a paper at the recent International Congress of Hygiene and Demography at Buda Pesth, on "The Relationship between the occurrence of Diphtheria and the movement of the Subsoil Water." The paper detailed the results of three years' observation in continuation of observations communicated by the author at the London International Congress of Hygiene in 1891. In the latter communication the author stated—

"1. It is assumed that diphtheria is primarily due to the special micro-organism bred and born in the soil.

"2. That given the special organism implanted upon the soil, the initial factor that determines its propagation is the condition of the soil with respect to moisture, temperature, aëration, and organic pollution.

"3. That its dispersal from the soil to persons living upon the soil is due to movements of the subsoil air. To which I would now add another conclusion, viz.:—

"4. That the quality of the disease, as measured by its fatal effect, is controlled by the range of the movements of the subsoil water."

In the present paper Dr. Adams gives a diagram in which the cases of diphtheria are represented in red and black blocks—the red showing the fatal cases. The number of cases that originated in the respective weeks is indicated by the sizes of the red and black blocks. The subsoil water level is represented in blue, and the amount of fluctuation for the respective weeks is indicated by the sizes of the blue blocks. The period in which the observations were made embraces the years 1885 to 1893 inclusive.

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[a] The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

During the first three years the ground water stands highest in the cold season and lowest in the hot season, the transition from highest to lowest level being gradual. In the four succeeding years the "tides are almost completely lost, being replaced by irregular and often abrupt oscillations of an indefinite and limited character, often misplaced or transposed in respect of time, so that high tides came when low tides were expected, and *vice versâ*." The difference between highest and lowest level was greatest in 1885, becoming less until in 1889 it had become 42 per cent. less than it was in 1885. Since that year the range has expanded, and in 1893 it was only 7 per cent. less than it was in 1885. It may interest those who are engaged in determining the different heights of underground water to learn the range in Maidstone. In 1885 it was 24·5 inches; in 1886, 23 inches; in 1887, 21·8 inches; in 1888, 13·4 inches; in 1889, 10·3 inches; in 1890, 14·3 inches; in 1891, 13·3 inches; in 1892, 21·8 inches; and in 1893, 26·6 inches. During 1885, 1886, and 1889, diphtheria was scarce, and in these years the ground water in the summer and autumn was low. In the next five years diphtheria was rife, and, on the whole, in this period the ground water was high at the time when it ought to have been low.

In 1892 and 1893 diphtheria was extremely prevalent, the total cases amounting to 274, and the fatal cases to 19 per cent. of total cases in 1892, and 14·6 per cent. in 1893. In these years the ground water stood very high, and the range was considerable. Dr. Adams argues from his observation that there is a relation between the range of the soil water and the percentage of fatality of the disease. The greater the range of level, the lower the percentage of fatality.

We conclude this notice of Dr. Adams' paper by quoting four of its most interesting paragraphs:—

"By general acceptance, analogy and observation both justify the belief that damp close stagnant states of the atmosphere promote, whilst the opposite conditions oppose prevalence of diphtheria. In these records we have, as regards the subsoil, evidence of these opposite conditions having at various times prevailed, and, broadly speaking, right through the nine years, from beginning to end, a strict concordance may be traced between soil dampness and diphtheria on the one hand, and absence of diphtheria and soil dryness on the other hand. But the dampness and dryness have their appropriate seasons, and so long as the order of this occurrence is preserved, health is maintained. As long as the soil is well washed by the winter's high tide and afterwards dried and aërated during the summer's low tide all goes well, diphtheria is kept in abeyance; but so soon as these salutary movements are arrested, or their order disturbed, diphtheria gets the mastery, reaching its acme of violence when stagnation is most complete; and I wish to lay particular stress upon the fact that the virulence of the disorder increases with the stagnation of the soil air. This fresh development of my observations, besides affording valuable support to the general argument, also shows that the quality as well as the quantity of this disorder varies in obedience to the circumstances concerning the subsoil water, there being an agreement, in the inverse ratio, between the case mortality from diphtheria and the range of the movements of the subsoil water.

"For the first four years the record as respects non-fatal cases is too imperfect to allow of a calculation being made of the case mortality; 1889 is the first year when I can do this with anything like confidence. The range of the movement of the subsoil water that year was only 10·32 inches, and the associated case mortality from diphtheria was 43·0 per cent.; in 1890, with the range increased to 14·28, the mortality fell to 18·7 per cent.; in 1891, with the range reduced to 13·32, the mortality rose to 36 per cent.; and during the last two years, as the range increased to 21·84 and 22·56, so the mortality sank to 19·0 per cent. and 14·6 per cent. in accordance therewith.

"Thus far we have dealt broadly with the facts, let us now study them more in detail. We have said, a dryness of the soil in the summer quarter is propitious; observe, there is generally some indication of this drying process even in unfavourable years, and invariably in association with it either a cessation, abatement, or attenuation of the disease. In 1889, our very worst year, there are six weeks made free; in 1890, four weeks; in 1891, six, and if we except one solitary case, nine weeks; in 1892, for twelve weeks there are no fatal cases, and for seven of these none at all; and in 1893, the disease was so attenuated that for seven weeks, though there were many sore throats, not a single fatal case.

"On the other hand I would have you remark how that a rise of the subsoil water taking place at this time of the year is invariably accompanied or immediately followed by a fresh outbreak of the disease, or an increase of its volume or violence, and the more sudden and considerable the rise, the more pronounced the effect; for example, it was to a rise of this sort in the midst of the summer of 1888 that we may attribute the starting point of our epidemic; the less sudden rise in 1889 being spread over three or four weeks, and not completed till the beginning of November, when the colder season had set in, produced an effect which, though obvious, was of shorter duration and smaller dimensions. The following year, 1890, furnishes a most interesting and instructive chart, in which the summer fall commences in the middle of the second quarter, but is suddenly interrupted and reversed by a rapid rise in the second week of the third quarter, after which the fall re-asserts itself and ultimately the water level reaches a lower point in the middle of the fourth quarter than it had done any previous time since 1887. Corresponding with these movements, what do we find? The beginning of the summer fall is, as usual, attended by a mitigation of the disease, four out of five of the last weeks of the second quarter are free of diphtheria, but the moment that the tide turns, and the misplaced rise of the second week of the third quarter takes place, a whole cluster of cases occur; and again, when the fall re-establishes itself, away goes the diphtheria, and four more consecutive weeks are absolutely free, but no sooner does the autumn rise set in, than back again it comes. In a similar way the order of occurrences may be traced through the remaining years, but it is not necessary that I should consume your time by mere reiteration of similar facts. I may, however, point out that the sinking of the tide below the 17ft. line in 1890 appears to have had a mitigating effect right into 1891, for it was not until after the sudden and impetuous rise in the autumn of that year that the disease again became seriously prevalent."

DIPHTHERIA IN BELGIUM.

The *Bulletin de L'Académie Royale de Médecine de Belgique*, No. 6, 1894, contains an article, by Dr. Schrevens, comparing the diphtheria of man with that of birds. He gave an account of many cases of the apparent communication of diphtheria to man from fowls and pigeons. He gives the following table showing the number of deaths per 100,000 of the inhabitants of Belgium ascribed to diphtheria:—

	Per 100,000 Inhabitants.	Per 1,000 Deaths from all Causes.
1853 to 1857	49·78	21·94
1858 to 1862	78·24	35·54
1863 to 1867	123·75	50·81
1868 to 1872	105·64	43·42
1873 to 1877	89·89	41·50
1878 to 1882	76·44	35·62
1883 to 1887	81·35	39·47
1888 to 1892	55·01	26·62

He attributes the decline in the fatality due to this disease to improved hygienic conditions in both town and country.

DIPHTHERIA IN GENERAL.

Dr. Edward Seaton presented a report "On the present state of knowledge of the Ætiology of, and Prevention of Diphtheria," to the late International Congress of Hygiene at Buda-Pesth. It was presented to some extent on behalf of the investigators into the subject in England, though not as a formal report from a committee. In this report it is shown, that whilst the death-rate from all causes and from zymotic diseases have greatly declined in England of late years, the death-rate from diphtheria has increased. In England and Wales the mean annual death-rate from this disease has gradually risen from 144 per 1,000,000 persons in 1881–3, to 192 in 1890–2. In London the mean annual rate has risen from 213 in 1881–3 to 377 in 1890–2.

It is not encouraging to the sanitary reformer to be told that, according to such eminent authorities as Sir William Jenner and Dr. Wilks, the disease is in the main independent of sanitary conditions or hygienic circumstances. On the other hand, a precisely opposite opinion is expressed by Sir George Johnson. Its soil origin has been insisted on by Dr. Adams, of Maidstone, whilst Dr. Thorne-Thorne and others express very guarded opinions as to the influence of insanitary conditions upon the development and spread of the disease. The *British Medical Journal* for September 15 contains the full account of Dr. Seaton's report.

The report on diphtheria, presented by Dr. Löffler, on behalf of the German Committee, holds that the organism discovered by the reporter is distinctly and indisputably associated with the disease. The American report presented by Dr. Billings shows that diphtheria is decreasing slightly in the towns, and largely in the rural districts in the United States. In cities in 1889 the deaths from diphtheria and croup comprised 77·96 per thousand of the total deaths in the United States (or parts thereof in which there was reliable registration), and in 1890, 49·54 per thousand. In the towns the percentage was 57·73 in 1880, and 50·1 in 1890. In the rural districts the respective figures were 83·89 and 49·18. In 1890 the deaths from diphtheria and croup taken together were in 28 cities of the United States 116·55 per 100,000 persons; in 28 largest German cities, 92; and in 28 largest English towns, 24·9. (In Dublin diphtheria has no sensible effect upon the death-rate).

ÆTIOLOGY OF TYPHOID FEVER.

During the present year the subject of the ætiology of typhoid fever has been discussed, and with considerable warmth, by the Academy of Medicine of France. Dr. Gibert contended that typhoid fever was not generally spread by means of polluted water, and instanced the case of the epidemic of that disease at Havre, which he traced to various insanitary conditions affecting that town. He maintains that typhoid fever in Havre is not limited to the town itself, but extends to surrounding and even distant districts—in the latter due to emanations from human dejecta exported as manure to those places from the town itself. Havre is the great northern focus of typhoid fever. How is the evil to be remedied? The fundamental proposition formulated by Dr. Gibert is that "in every town which suffers considerably from endemic typhoid its sanitary precautions are either defective or totally absent. Any town which purifies its soil, which does not allow waste material to stay for any length of time in its houses, and supplies its inhabitants with pure water, gets rid of typhoid fever." Then he adds—speaking of Havre:—"Our soil is not purified, and we have but two elements of salubrity in our favour: *pure water and undoubtedly pure milk.*"

According, therefore, to Gibert, the sole cause of the unsanitary condition of Havre from the epidemic point of view is the contamination of the subsoil. He relies on the following arguments to prove it:—

> "The rich districts, in which the inhabitants lived under the most favourable hygienic conditions, have suffered most. On the other hand the *Perrey* district, whose population consists of poor fishermen, has been almost entirely exempt. M. Gibert explains the fact by the presence of sewers in the rich districts, while the poor one is occupied by a population addicted to alcoholism, but is built on ground composed of shingle, and the subsoil water is washed out twice a day by the tide."

Dr. Brouardel, dissenting from Dr. Gibert's views, says:—

> "From official documents to which I have had access, I find that the comparison between the rich districts and the *Perrey*, on which M. Gibert relies for his argument, gives a result the very reverse of what he enunciates. From 1880 to 1889 the mean typhoid mortality in the Perrey proper amounts to 9 per 1,000. For Havre, as a whole, for the same period, the mean typhoid mortality is 11·6 per 1,000, which is not far from the Perrey mortality. The north division, one of the least

affected, is essentially that of Bétories, where cesspools occur. It contains the most rich habitations, surrounded by gardens, and provided with all the comforts possible.

"Further on M. Gibert relies on a further argument in favour of his theory. He says:—

"'In another part of the town—that which lies between the coast and the port—there is much less typhoid fever than in the old town or at a place called Graville. There, too, probably owing to natural causes, the soil and subsoil are better drained than elsewhere, and I believe that the subterranean water runs out more easily than in the west part of the town.'

"Well, if we study the statistics for that special portion, we see that for 2,618 inhabitants there have been 48 typhoid deaths, which gives for the ten years a death mortality of 18·4 per 1,000, while the mean for Havre is for the same period 11·6. This argument is not, therefore, more reliable than the preceding.

"It is not really proved by the facts observed in Havre, and called upon by our colleague, that the distribution of typhoid fever in this town is affected by the state of the subsoil. We shall now discuss the criticism passed by M. Gibert in our Report drawn in 1877. We had declared that the springs of St. Laurent were badly protected, and we had recommended in our conclusions certain precautions to remedy this defect.

"M. Gibert looks upon spring waters as pure—'and furthermore,' says our colleague, thinks 'that M. Brouardel has not made good the proof that the St. Laurent water is contaminated. The presence of Eberth's bacillus should have been first demonstrated; neither he nor M. Thoiner succeeded in finding it.' That is the main argument. I must call attention to a positive fact. M. Thoiner and myself have carried out the inquiry in November and December, 1888, and January, 1889, and at that time the epidemic was practically over. Our bacteriological experiments were done in January. But even had we proceeded with them earlier we might have had just as negative a result. The hygienist arrives generally too late—when the epidemic is at its height or on the decline, when the bacilli due to an accidental contamination have disappeared.

"To establish the water theory of the dissemination of typhoid fever, we have not relied only on the value of a microbe yet under discussion by bacteriologists, but we have proved that the groups of individuals attacked drank from the same water supply, and that, side by side with them, were groups little or not affected who were supplied from another source.

"Should the value now put on Eberth's bacillus suffer any diminution the water theory of typhoid fever dissemination should still stand unshaken.

"The sole water supply of Havre is spring water.

"This furnishes 99 litres per head; quantity totally inadequate. The two chief springs are Catillon and St. Laurent.

"*General situation of the Springs—Chemical composition—Geological origin.*

"From a topographical point of view these springs may be divided into three groups, of which the most important is St. Laurent. The analysis of the different springs shows that one of them (Sauvie) is not fit for drinking purposes; that the others, bar St. Laurent, are, if not pure, at least dangerous; and that St. Laurent is chemically satisfactory.

"The reservoirs are situated in the chalk hills which overhang the town on the north and north-east. The geological structure of these hills is simple and uniform, and may be stated as follows:—

"On the surface is the continuous layer of arable land (*limon* or *humus*) of Picardy, composed of sandy clay, which is fairly easily penetrated by rain. Below this layer is the silico-clay, which is impervious, but is *not continuous.* It often dips in deep wells into the chalk stratum underlying it, while at other times the chalk rises up to the surface soil, which facts have to be kept in view when studying the formation of the springs.

"Below the clay layer are found in order—1. White chalk; 2. Marl chalk; 3. Chalk; 4. Clay.

"The three upper chalk layers being pervious, and the lower clay impervious, the sheet of water is situated on top of this last layer.

"Can the water from the Catillon springs be contaminated, and how does it occur?

"We will study it under three headings:—(*a*) In the transit from the reservoir to Havre. (*b*) In the immediate vicinity of the spring. (*c*) On the top of the hill range.

"(*a*) From the reservoir to Havre contamination is most unlikely to occur, as it runs at high pressure through water-tight tubes.

"(*b*) The situation of the Catillon springs is such that no one can have access to it but the keeper. A field opposite the east aspect of the municipal works is cultivated. Its slope is towards the path leading to the spring. This field, let by the town, was, up to 1888, manured with farm-yard manure; after that it received 100 boxes of human excreta, brought from the town.

"There is also in close proximity a restaurant, whose garden's slope is directed towards the springs. This garden receives the excreta from numerous guests frequenting the restaurant during the summer months.

"In the village where the restaurant is situated a few cases of typhoid fever occurred in 1887 as well as in 1888.

"In 1887 a light case occurred. Dejecta thrown into garden in front of house.

"In 1888, three cases, very severe. Dejecta thrown in front of house.

"Another case, briefly stated, occurred in a house situated 57 metres above the spring. The water supply of this farm is a well supplied by spring water in direct connection with the water sheet. It has no coping stone, being flush with the ground. When cleaned lately it was found full of rubbish of all descriptions. This well is actually surrounded by farm-yard manure heaps and excreta. It is also on the high road of many other contaminations from human dejecta.

"(*c*) The crest of the hills, also in communication with the above-mentioned village, is cultivated chiefly by M. Lecomte. Up to lately it was manured with farm-yard and artificial manures. In 1879 M. Lecomte began to use large quantities of human dejecta brought from Havre. His neighbour, M. Legallais, followed his example, and the practice has become very general amongst the farmers of the district. Both M. Lecomte and his wife suffered from typhoid fever in 1887 and recovered. In August, 1886, on the crest above the springs and over the sheet of water a new event took place. M. Lecomte manures his fields with human dejecta, and in May, 1887, typhoid fever breaks out in Havre. In Jan., 1887, same practice takes place; in May, 1888, typhoid breaks out. There appears to be a striking evidence of cause and effect. Four objections suggest themselves to this interpretation of facts, the most important of which is: the thorough filtration by the soil, intercepting all organic matter found on the surface.

"2. Was the bacillus present in the dejecta found on the land in 1887–88? There is no doubt about 1887, as there was then an epidemic in full force. In 1886, though no epidemic typhoid was present in Havre, and in 1886, July, 18 deaths occurred; therefore, as this represents at least 100 cases or more, the presence of the bacillus in the dejecta found on the land leaves very little doubt.

"3. The time between the contamination of the land and the appearance of the epidemic—August 7th and 8th, 1887, seems very long—9 months for the first and 8 months for the second; this objection is more theoretical than real. For, as we remarked before, the period of efficatious rains occurs between November and April. Besides, filtration is very slow, especially for St. Laurent, and the heaviest rainfalls—those which show a sensible increase in the level—do not show their full effect till after a period of *six or seven months*. There the appearance of typhoid fever soon after the manuring would not agree with the genesis here admitted, while its appearance in May meets this ætiological idea. The rain begins to carry down the pathogenic germs in October-November, and the fever breaks out six or seven months later. That is plain.

"In admitting the discharge of typhoid bacilli from the heights of Splemont, in the sheet of subterranean water, we admit the filtration of the micro-organisms through a thickness of 50 metres—that is to say, through a thickness which is regarded as undoubtedly protecting against all contamination subsoil water. Such is the most formidable objection against the ætiological proposition that we formulate. We will try to answer it as far as possible.

"We could not obtain the water of St. Laurent in condition such as to be convincing, but we worked with another spring in identical geological conditions, and we found from 42,000 to 470,000 germs per litre. In our investigations through a tunnel of 80 metres, which leads to the spring spoken of, we were able to obtain evidence from the mode of filtration of the mode of contamination.

"'M. Gibert objects to my attacks on the St. Laurent water. The attention of the town has been too long turned away from this important factor, which, according to me, is the most important, viz., the soil contamination.' M. Gibert quotes as proof of the efficacy of proper drainage the sanitation of Bruxelles, Berlin, Dantzig, and Frankfort.

"Let us see if these towns are, indeed, exempt, or nearly so, from typhoid fever. The mortality in Bruxelles amounts to 2·2 per 1,000 from typhoid fever. In Berlin, in 1889, 700 cases occurred. Berlin can be looked upon as perfectly sanitary as far as subsoil is concerned; as to the water supply, it was obtained from the filtration, on a large scale, at the Itscalan on the Spree, and the Zegel, from the lake of that name. The portion of the town supplied from the Zegel alone escaped from the Spree very bad, and again supplied by a mixture of the Firo moderately affected. Fraenkel and Pfeiffer proved the passage of bacteria throuugh filters constructed on the model of the Spree filters. As long as the filters worked the population escaped, but when disturbed the epidemic broke out.

"Again, a question of water supply; let us now study what took place in some French towns.

"Rennes was supplied with water in 1883, the mortality fell from 13·4 to 4·2; and the suburbs are still on the old system of well water.

"The mortality in the garrison was 43·4 per 10,000, now 2·6 per 10,000. No measure of sanitation of subsoil was undertaken.

"The same may be said of Angoulême—the mortality falling from 24·42 to 2·61. In the army it fell from 80·15 to 2·59. No sewers were established. The subsoil was not touched.

"This is entirely contradictory to Pettenkofer's observations, but, I say with Koch, a town suffers from typhoid fever *pari passu* with the impurity of its water supply.

M. Gibert, in answering M. Brouardel, denies the possibility of contamination by slow filtration. He further backs his opinion by the fact that the outbreak of typhoid does not follow the periods mentioned by M. Brouardel. The water of the St. Laurent never showed the presence of pathogenic germs. He admits the possibility of mechanical contamination should a prolonged heavy downpour accompany the use of human dejecta, but denies it having ever occurred.

THE JEWISH METHOD OF SLAUGHTERING CATTLE.[*]

An interesting book by Dr. J. A. Dembo gives a full account of the various methods of slaughtering cattle. He shows that the methods may be included in two classes only, namely—(1), the direct bleeding by severing the carotids and the other blood vessels of the neck; and (2), the preliminary stunning of the animal, for the purpose of sparing it the alleged pain caused by cutting the throat.

The author considers the question—How soon does the animal become unconscious after either the stunning or throat-cutting process is applied to it? Dr. Dembo contends that the function of the brain, and particularly of the grey matter, the seat of consciousness, ceases *immediately* after the blood supply is cut off. In the case of animals slaughtered for food unconsciousness supervenes in from two to five seconds after the arteries of the neck are cut through.

In the case of dogs the time is even shorter. If the abdominal artery which supplies blood to the hind-legs of animals be compressed through the abdominal walls against the spinal column, the extremities become paralysed for the time being; they lose sensation and locomotive power, which, however, reappear the moment the pressure is relaxed. Dr. Dembo argues therefrom that if the spinal cord ceases instantly to do its work because of the cessation of the blood supply, how much more is it not necessary to supply the brain with blood, seeing that it is of a more subtle and sensitive matter than the cord. An experiment is cited to show the effect of a deficiency of circulation in the brain—if an animal is placed on a horizontal wheel and rotated round a vertical axis, its head being turned towards the centre and its legs towards the circumference, it soon lies as if it were dead. If its position be reversed so that its head points towards the circumference, it will soon revive. Dr. Dembo enters fully into the physiology of the circulatory system, and after quoting numerous authors holds that the Jewish method of slaughter is the most humane and hygienic. He makes light of the tests usually applied to animals which have had their throats cut—such as, for example, the twitching of the eye of the animal, which often many minutes after the throat has been cut closes. This action he regards as "merely reflex," and in no way indicative of consciousness. He quotes cases to show that similar so-called signs of life may be produced in a head which has been wholly removed from the body.

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[*] The Jewish Method of Slaughter compared with other methods from the Humanitarian, Hygienic, and Economic Points of View. By J. A. Dembo, M.D., Physician to the Alexander Hospital, St. Petersburgh. Translated from the German. London: Paul, Trench, Trübner & Co. 1894.

Dr. Dembo exhaustively examines all the different methods of killing animals with and without stunning. The "stab in the neck," which at one time was believed to produce instant insensibility by destruction of the medulla, he shows only injures the cord and does not cause immediate unconsciousness. Nor does the "mask with bolt" system show any superiority over other common methods. By this plan a mask, containing an iron bolt, is placed on the animal's face and a violent blow from a hammer drives the bolt through the skull. Instead of the bolt a revolver is sometimes used, and a bullet from it discharged into the brain. Dr. Dembo shows that this is not a good plan, and that accidents to the butchers using it are likely to occur. He condemns the poleaxe method, which is that in common use in the English and French abattoirs.

Dr. Dembo made a chemical examination of the flesh of animals killed by different methods. The usual products of the decomposition of meat are ammonia and carbonic acid, and later on sulphuretted hydrogen, indol, and other matters. He estimated only the amount of ammonia, which he found to be more rapidly and abundantly formed when the animals had not been killed by the Jewish method. He says that "the results of the chemical analysis serve to fully confirm the experience of the butchers that meat obtained by the Jewish method of slaughter can, even in summer, be preserved two days longer." He further points out that the dangerous ptomaïns, which are developed in meat by the action of certain microbes, are most readily produced when the meat is alkaline, which is the case when ammonia is present in it.

The chemistry of Dr. Dembo, if the translation of his book is accurate, is open to serious criticisms. He says that sal ammoniac has an odour resembling that produced during the decomposition of organic matter. As a matter of fact sal ammoniac is perfectly odourless: it is not *chlorate* but chloride of ammonium, and common salt is not *chlorate* of sodium—it is the chloride of that metal.

The statements of the author may be summed up as follows:—

"(1) From the point of view of the protection of animals there is no more humane method of slaughter than the 'Shecheta,' for

"(*a*) This method causes in the quickest and safest way loss of consciousness and insensibility.

"(*b*) The cut with the extremely sharp and smooth-edged knife is entirely painless, and encounters very few sensitive nerves in the neck.

"The tying and casting of the cattle previous to the act of slaughter, can on the one hand be easily performed with the aid of the numerous existing apparatus, without causing the slightest pain, and on the other hand, has the great advantage of guaranteeing the safety of the people employed in the slaughter-house.

"(2) From the point of view of hygiene there is no more rational method than the Jewish one, for

"(*a*) The copious and much more rapid escape of blood, and the epileptiform convulsions appearing towards the end of the bleeding, cause in the body of the slaughtered animal the development of lactic acid, which, combining with potassium phosphate, transforms the latter into potassium tartrate and dihydrogen potassium phosphate. Dihydrogen potassium phosphate impedes the development of micro-organisms and the formation of the products of putrefaction (ptomains and other poisonous substances), and considerably improves the taste of the meat.

"(*b*) The epileptiform convulsions render the blood that is still left in the meat less alkaline, and diminish therefore its properties as a nutrient medium for bacteria.

"(*c*) The epileptiform convulsions render the meat more tender and give it a better appearance.

"(3) From the point of view of economy there is no more recommendable method of slaughter than the 'Shecheta,' for

"(*a*) The early onset of rigidity makes the meat fit for use sooner than any other sort of meat.

"(*b*) The decomposition is delayed, and the meat even in summer remains two to three days longer fit for use.

"(*c*) There is a much smaller quantity of blood and water in the meat, and the buyer is not imposed upon."

(To be continued.)

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President—Walter G. Smith, M.D., President of the Royal College of Physicians of Ireland.

Sectional Secretary—A. N. Montgomery, M.R.C.P.I.

Friday, May 11, 1894.

The President in the Chair.

An Unusual Case of Exophthalmic Goitre.

Dr. Craig exhibited the patient and read a paper on "An unusual case of Exophthalmic Goitre." [The paper will be found in Vol. XCVII., page 508.]

Sir Wm. Stokes said he had seen the patient shortly after her admission to hospital. The chemosis of the conjunctivæ and the exophthalmos, especially the former, were much more striking then. As regards the surgical treatment of cases of this class, he suggested, in lieu of thyroidectomy, which was always a serious and difficult operation, the exposure and division of the isthmus of the thyroid body. He had performed this operation in three cases of goitre, in two of which a marked and beneficial result took place, while in the third case no change took place. The size of the thyroid became much less in two of them.

Dr. H. C. Tweedy said that many years ago he had seen inunction of red mercurial ointment tried in one of these cases, with the result that the patient's sufferings were much increased.

Dr. W. J. Thompson asked what line of treatment had been adopted in the present case. He had heard that in some cases there had been observed *post-mortem* changes in the inferior cervical ganglion.

The **President** said that it was worthy of note that there had been no history of a fright previous to the development of the disease. Many cases had occurred immediately after the Franco-Prussian war. This is interesting, as it may indicate the direction in which to look for the solution of the pathology of the disease. The chemical theory was a new one, and it showed that we might have diseases caused by a plus and minus derangement of the gland. It did not, however, explain the much greater frequency of the diseases affecting the gland in the female. Were we to assume that the metabolism of the female was different from that of the male body. As regards the treatment spontaneous recovery was not so rare as might be concluded from reading the text-books. Some years ago he had seen a young woman, in consultation with Dr. Ball, and she then appeared in imminent danger of dying. She subsequently got quite well. He wished to know had ligature of the arteries going to the gland been tried with a view to, as it were, starve it.

Dr. Craig, in reply, stated that, in regard to Sir Wm. Stokes' suggestion that in some cases division of the middle lobe might do good, this procedure was only of benefit in cases of goitre but not in cases of exophthalmic goitre. The superior and inferior thyroid arteries had been ligatured but without much good result. As regards drugs, belladonna and ergot he believed to have been the ones most generally found useful. He had applied to the conjunctivæ of his patient's eyes, to remove the local affection, resorcin with some good result, and silver nitrate with less effect.

Notes on Cases of the Severe Type of Influenza.

Dr. Burgess read a paper on this subject. [It will be found at p. 1.]

The **President** said that he agreed with Dr. Burgess that post-influenzal pneumonias were peculiar. They lacked the characteristic rusty sputum, crepitus over the lungs, and were frequently complicated by limited pleural effusions. The bandbox sound he frequently observed in cases of pneumonia and of pleural effusions. As regards the treatment nothing was of much avail, except in the early stage, when you could lower the temperature and relieve the headache. Careful nursing, careful feeding, and rest for a sufficient length of time were what were needed after this.

Dr. W. J. Thompson said he had attended a gentleman who, in 1892, had a moderate attack of influenza. In May, 1893, he was seized with chilliness, and his temperature rapidly rose to 106°. He had cyanosis of his face, headache, and pain in his back and legs. He treated him with large doses of antipyrin and salicylate of sodium, as well as some carbonate of ammonia and digitalis. His temperature in a couple of days had fallen and he recovered.

Dr. Craig said that he had frequently noticed that the apex and anterior parts of lungs were affected in pneumonia following influenza. He relied on stimulants very much in the treatment of these cases, especially in people past middle life.

Dr. Burgess briefly replied.

The Section then adjourned.

CRANIOTOMY FOR EPILEPSY.

In the *Post-Graduate* for January last a case of linear craniotomy is reported in a boy, aged nine, suffering from epilepsy and imbecility, dependent on defective brain development. The imbecility remained unimproved, but the fits were reduced in number. They had been as many as eleven in a day. After the operation the boy had only three in six weeks, without bromides. The operator had had five cases of the kind in the past year. "Two died, two were not benefited, two were much benefited."

TREATMENT OF MULTIPLE LARYNGEAL PAPILLOMATA IN CHILDREN.

Dr. A. Rosenberg, First Assistant in the Policlinic for Diseases of the Throat and Nose in the University of Berlin, writes to us to state that he is engaged in writing a paper on the above topic. Dr. Rosenberg points out that opinions are much divided as to the best method of treatment to adopt in such cases. He admits that each case must be dealt with on its own merits, and that we dare not treat all cases in the same manner. Even as regards the crucial question whether it is better to adopt an endo-laryngeal method of treatment, or to resort to surgical measures, or to treat the cases in some other way, there is no unanimity. He points out that, in view of this fact, it would be of the first importance to collect information as to the relative utility of the various methods of treatment, and accordingly he asks all surgeons and laryngologists to give him full details of such cases as have come under their care, and he requests them to be good enough to answer the following queries:—*First.* The age and sex of the child, and the business of the father? *Second.* The symptoms (hoarseness, dyspnœa, &c.)—the laryngoscopic image? *Third.* The method and date of operation? *Fourth.* The result of operation, also as to the voice and respiration. (Death—cause? Relapse—when? Recovery—date of the last examination?) *Fifth.* Have these cases been already published? If so, when and where? The answers may be addressed to Dr. A. Rosenberg, Mittelstrasse, 55, Berlin, N.W.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.R.C.P.I.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, September 8, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Aug. 18.	Aug 25.	Sept. 1.	Sept. 8.		Aug. 18.	Aug. 25.	Sept. 1.	Sept. 8.
Armagh -	28·0	21·0	14·0	21·0	Limerick -	15·4	18·2	19·6	16·8
Belfast -	17·2	25·8	23·4	20·1	Lisburn -	12·8	17·0	8·5	25·7
Cork -	15·9	20·8	13·8	24·9	Londonderry	22·0	20·4	9·4	23·6
Drogheda	13·2	13·2	13·2	8·8	Lurgan -	22·8	13·7	22·8	36·5
Dublin -	18·3	27·0	18·3	24·9	Newry -	16·1	16·1	20·1	16·1
Dundalk -	4·2	4·2	4·2	12·6	Sligo -	10·2	30·5	20·3	5·1
Galway -	22·7	26·4	26·4	3·8	Waterford -	7·5	10·0	5·0	25·0
Kilkenny	9·4	9·4	9·4	33·0	Wexford -	18·1	13·5	18·1	18·1

In the week ending Saturday, August 18, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 17·1), was equal to an average annual death-rate of 17·6 per 1,000 persons living. The average rate for eight principal towns of Scotland was 14·6 per 1,000. In Glasgow the rate was 14·8, and in Edinburgh it was 12·1.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 17·2 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in eleven of the districts to 4·6 in Belfast and Lurgan—the 89 deaths from all causes registered in Belfast comprising 1 from measles, 2 from whooping-cough, 4 from diphtheria, 4 from enteric fever, and 13 from diarrhœa; and the 5 deaths in Lurgan comprising 1 from diphtheria.

Among the 23 deaths from all causes registered in Cork are 2 from diarrhœa.

In the Dublin Registration District the registered births amounted to 164—86 boys and 78 girls; and the registered deaths to 132—60 males and 72 females.

The deaths, which are 29 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 19·7 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the district, the rate was 18·3 per 1,000. During the first thirty-three weeks of the current year the death-rate averaged 25·7, and was 2·3 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 17, being 13 below the average for the corresponding week of the last ten years and 3 under the number for the week ended August 11. They comprise 3 from small-pox, 1 from measles, 1 from scarlet fever (scarlatina), 1 from influenza, 2 from whooping-cough, 1 from enteric fever, 5 from diarrhœa, and 1 from dysentery.

The deaths from small-pox are those of a man aged 37 years, unvaccinated; a male infant 8 weeks old, unvaccinated; and a woman aged 51 years who had been vaccinated "in infancy—one small bad mark."

Thirty-seven cases of small-pox were admitted to hospital, being 11 over the number of admissions for the preceding week: 3 small-pox patients died, and 78 remained under treatment on Saturday, being 34 over the number in hospital on Saturday, August 11.

The number of cases of enteric fever admitted to hospital was 10, being 5 under the admissions for each of the two weeks preceding: 18 enteric fever patients were discharged, 1 died, and 67 remained under treatment on Saturday, being 9 under the number in hospital on Saturday, August 11.

The hospital admissions for the week included, also, 16 cases of scarlatina, being 2 over the number of cases of that disease admitted during the preceding week, but 5 under the admissions for the week ended August 4. Nine patients were discharged and 68 remained under treatment on Saturday, being 7 over the number in hospital at the close of the preceding week.

As in the week preceding, only 13 deaths from diseases of the respiratory system were registered, being 4 below the average for the corresponding week of the last ten years. The 13 deaths comprised 7 from bronchitis and 4 from pneumonia or inflammation of the lungs.

In the week ending Saturday, August 25, the mortality in thirty-three large English towns, including London (in which the rate was 15·4), was equal to an average annual death-rate of 16·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 14·9 per 1,000. In Glasgow the rate was 16·3, and in Edinburgh it was 14·2.

The average annual death-rate in the sixteen principal town districts of Ireland was 23·7 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 3·3 per 1,000, the rates varying from 0·0 in eight of the districts to 4·7 in Londonderry—the 13 deaths from all causes registered in that district comprising 1 from diphtheria and 2 from diarrhœa. Among the 133 deaths from all causes registered in Belfast are 4 from measles, 1 from typhus, 1 from whooping-cough, 3 from diphtheria, 2 from enteric fever, and 9 from diarrhœa. The 30 deaths in Cork comprise 1 from simple continued fever, 2 from enteric fever, and 1 from diarrhœa.

In the Dublin Registration District the registered births amounted to 180—94 boys and 86 girls; and the registered deaths to 188—101 males and 87 females.

The deaths, which are 32 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 28·0 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 27·0 per 1,000. During the first thirty-four weeks of the current year the death-rate averaged 25·7, and was 2·2 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 31, being 4 over the average for the corresponding week of the last ten years and 14 over the number for the week ended August 18. They comprise 6 from small-pox, 4 from scarlet fever (scarlatina), 4 from whooping-cough, 4 from enteric fever, 8 from diarrhœa, 1 from dysentery, and 1 from erysipelas.

The deaths from small-pox are those of two men aged respectively 30 years and a female aged 20 years, vaccinated; and two boys aged 7 and 10 years respectively, and one girl aged 9 years, unvaccinated.

Only 14 cases of small-pox were admitted to hospital during the week, being 23 under the number of admissions for the preceding week: 7 small-pox patients were discharged, 6 died, and 79 remained under treatment on Saturday, being 1 over the number in hospital on Saturday, August 18.

The number of cases of enteric fever admitted to hospital was 11, being 1 over the admissions for the preceding week: 7 enteric fever patients were discharged, 2 died, and 69 remained under treatment on Saturday, being 2 over the number in hospital on Saturday, August 18.

The hospital admissions for the week included, also, 4 cases of scarlatina, against 16 for the preceding week: 6 patients were discharged, 2 died, and 64 remained under treatment on Saturday, being 4 under the number in hospital at the close of the preceding week.

No case of measles remained under treatment in hospital at the close of the week.

Twenty-one deaths from diseases of the respiratory system were registered, being 3 over the average for the corresponding week of the last ten years, and 8 over the number for each of the two preceding weeks. The 21 deaths consist of 10 from bronchitis, 10 from pneumonia or inflammation of the lungs, and 1 from pleurisy.

In the week ending Saturday, September 1, the mortality in thirty-three large English towns, including London (in which the rate was 14·4), was equal to an average annual death-rate of 15·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·6 per 1,000. In Glasgow the rate was 16·5, and in Edinburgh it was 13·8.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 18·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·9 per 1,000, the rates varying from 0·0 in ten of the districts to 5·6 in Belfast—the 121 deaths from all causes registered in that district comprising 3 from measles, 1 from scarlatina, 1 from whooping-cough, 2 from diphtheria, 2 from simple continued fever, 2 from enteric fever, and 18 from diarrhœa.

In the Dublin Registration District the registered births amounted to 188—85 boys and 103 girls; and the registered deaths to 131—71 males and 60 females.

The deaths, which are 45 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 19·5 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the district, the rate was 18·3 per 1,000. During the first thirty-five weeks of the current year the death-rate averaged 25·6, and was 2·3 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 18, being 21 below the average for the corresponding week of the last ten years and 13 under the number for the week ended August 25. They comprise 1 from scarlet fever (scarlatina), 2 from whooping-cough, 4 from enteric fever, and 10 from diarrhœa.

The number of cases of small-pox admitted to hospital, which had fallen from 37 for the week ended August 18 to 14 for the following week, rose to 16: 13 small-pox patients were discharged, and 82 remained under treatment in hospital on Saturday, being 3 over the number in hospital at the close of the preceding week.

The number of cases of enteric fever admitted to hospital was 15 against 11 in the preceding week: 10 enteric fever patients were discharged, 3 died, and 71 remained under treatment on Saturday, being 2 over the number in hospital on Saturday, August 25.

The hospital admissions for the week included, also, 17 cases of scarlatina, being 13 over the number of cases of that disease admitted during the preceding week: 12 patients were discharged, 1 patient died, and 68 remained under treatment on Saturday, being 4 over the number in hospital at the close of the preceding week.

Only 14 deaths from diseases of the respiratory system were registered, being 6 under the average for the corresponding week of the last ten years, and 7 under the number for the preceding week. The 14 deaths comprise 6 from bronchitis and 7 from pneumonia or inflammation of the lungs.

In the week ending Saturday, September 8, the mortality in thirty-three large English towns, including London (in which the rate was 14·1), was equal to an average annual death-rate of 15·3 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·6 per 1,000. In Glasgow the rate was 15·0, and in Edinburgh it was 17·7.

The average annual death-rate in the sixteen principal town districts of Ireland was 22·2 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·7 per 1,000, the rates varying from 0·0 in eight of the districts to 9·0 in Wexford—the 4 deaths from all causes registered in that district comprising 2 from scarlatina. Among the 104 deaths from all causes registered in Belfast are 2 from measles, 3 from whooping-cough, 4 from enteric fever, and 7 from diarrhœa. The 36 deaths in Cork comprise 2 from whooping-cough and 1 from diarrhœa. Among the 12 deaths in Limerick are 1 from each of the following diseases—viz., scarlatina, typhus, and diarrhœa. Of the 6 deaths in Lisburn 2 were from measles.

In the Dublin Registration District the registered births amounted to 252—132 boys and 120 girls; and the registered deaths to 175—86 males and 89 females.

The deaths, which are 12 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 26·1 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the district, the rate was 24·9 per 1,000. During the first thirty-six weeks of the current year the death-rate averaged 25·6, and was 2·2 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 21, being 8 over the number for the week ended September 1, but 15 under the average for the corresponding week of the last ten years. They comprise 1 from small-pox, 1 from scarlet fever (scarlatina), 1 from typhus, 4 from whooping-cough, 1 from ill-defined fever, 3 from enteric fever, 1 from simple cholera, 7 from diarrhœa, and 1 from hydrophobia.

The death from small-pox, which occurred on the 2nd of August, is that of a girl aged 6 years, unvaccinated.

The number of cases of small-pox admitted to hospital was 16, being equal to the admissions for the preceding week: 11 small-pox patients were discharged, 2 died, and 85 remained under treatment in hospital on Saturday, being 3 over the number in hospital at the close of the preceding week.

Thirteen cases of enteric fever were admitted to hospital against 15 admissions in the week ended September 1. Sixteen enteric fever patients were discharged, and 68 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

The hospital admissions for the week included, also, 19 cases of scarlatina, an increase of 2 as compared with the admissions for the preceding week: 10 scarlatina patients were discharged, and 77 remained under treatment on Saturday, being 9 over the number in hospital on Saturday, September 1.

Deaths from diseases of the respiratory system, which had fallen from 21 for the week ended August 25 to 14 for the following week, rose to 26, or 8 over the average for the corresponding week of the last ten years. The 26 deaths comprise 10 from bronchitis, 12 from pneumonia or inflammation of the lungs, and 2 from croup.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15 *W., for the Month of August,* 1894.

Mean Height of Barometer,	29·916 inches.
Maximal Height of Barometer (on 29th, at 9 a.m., and also at 9 p.m.),	30·304 „
Minimal Height of Barometer (on 15th, at 9 a.m.),	29·432 „
Mean Dry-bulb Temperature,	56·9°.
Mean Wet-bulb Temperature,	54·4°.
Mean Dew-point Temperature,	52·0°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·389 inch.
Mean Humidity,	84·3 per cent.
Highest Temperature in Shade (on 8th),	67·9°.
Lowest Temperature in Shade (on 20th and 22nd),	47·1°.
Lowest Temperature on Grass (Radiation) (on 22nd),	42·8°.
Mean Amount of Cloud,	75·8 per cent.
Rainfall (on 18 days),	3·726 inches.
Greatest Daily Rainfall (on 25th),	1·369 inches.
General Directions of Wind,	N.W., W.

Remarks.

A month of singularly cloudy skies, low mean temperature, north-westerly winds, and a heavy rainfall. August, 1893, had proved a record month as regards high temperature. On no fewer than 14 days did the thermometer exceed 70° in the shade during that month, and the arithmetical mean temperature was 63·0°, or 3·3° above the average and 1·0° above that of August, 1871, when it reached 62·0°. In marked contrast to these temperature values, we find that not once in August, 1894, did the thermometer reach 70° in the shade, while it failed to reach even 60° on as many as six out of the last seven days of the month. Again, the arithmetical mean temperature fell 1·8° short of the average—57·9° compared with 59·7°. The nights were, however, not cold. It was owing to the clouded state of the sky and a consequent failure of solar radiation that the month proved so cool. The percentage of cloudiness was 75·8—at 9 a.m., 80·6; at 9 p.m., 71·0.

In Dublin the arithmetical mean temperature (57·9°) was much below the average (59·7°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 56·9°. In the twenty-nine years ending with 1893, August was coldest in 1881 (M. T. = 57·0°), and warmest in 1893 (M. T. = 63·0°). In 1885 the M. T. was only 57·1°; in 1879 (the "cold year") it was 57·7°; in 1887, 60·3°; in 1888, 58·2°; in 1889, 58·6°; in 1890, only 57·2°; in 1891, 58·1°; in 1892 60·0°; and in 1893, 63·0°.

The mean height of the barometer was 29·916 inches, or 0·019 inch above the corrected average value for August—namely, 29·897 inches. The mercury marked 30·304 inches at 9 a.m. and also at 9 p.m. of the 29th, and fell to 29·432 inches at 9 a.m. of the 15th. The observed range of atmospheric pressure was, therefore, ·872 inch—that is, a little less than nine-tenths of an inch.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 56·9°, or 4·4° below the value in August, 1893. It was also 2·2° below the value for July, 1894. Using the formula, *Mean Temp.* = *Min.* + (*max.* — *min.* × ·47), the mean temperature was 57·6°, or 1·7° below the average mean temperature for August, calculated in the same way, in the twenty-five years, 1865–89, inclusive (59·3°). The arithmetical mean of the maximal and minimal readings was 57·9°, compared with a twenty-five years' average of 59·7°. On the 8th the thermometer in the screen rose to 67·9°—wind, W.S.W.; on the 20th and again on the 22nd the temperature fell to 47·1°—wind, northerly and north-westerly. The minimum on the grass was 42·8° on the 22nd.

The rainfall was 3·726 inches, distributed over 18 days. The average rainfall for August in the twenty-five years, 1865–89, inclusive, was 2·825 inches, and the average number of rainy days was 15·5. The rainfall, therefore, and also the rainy days, were considerably in excess of the average. In 1874 the rainfall in August was very large—4·946 inches on 18 days; and in 1868 also 4·745 inches fell on, however, only 13 days; but the heaviest downpour in August occurred in 1889, when 5·747 inches were registered on 22 days. On the other hand, in 1884, only ·777 inch was measured on 8 days. In 1887, 1·520 inches of rain fell on 16 days; in 1888, 1·270 inches on 12 days; in 1890, 2·799 inches on 19 days; in 1891, 4·953 inches on 25 days; in 1892, 3·557 inches on 22 days, and in 1893, 2·713 inches on 16 days.

High winds were noted on as many as 13 days, and attained the force of a gale on two occasions—namely, the 10th and 14th. Thunder was heard on the 2nd. Temperature failed to reach 70° in the screen on any day. Hail fell on the 8th. A lunar halo was seen on the 21st.

The weather remained changeable and showery, with fresh westerly (S.W. to N.W.) winds, throughout the period ended Saturday, the 4th. On Tuesday, July 31st, a new area of low pressure advanced over Ireland from the Atlantic, causing clouds and heavy rain at times. This system gradually developed into a well-marked cyclone, which was found off the coast of Yorkshire at 8 a.m. of Friday, the 3rd, and in the centre of which the barometer was apparently at the time named slightly below 29·30 inches. Heavy showers attended the passage of this depression, and thunder occurred at times in various places. In front of the centre, gradients were slight, and the wind was only light or moderate in force—in its rear, however, the steepness of gradient was much more decided, and the north-westerly winds were correspondingly strong. Indeed, on Friday morning moderate gales from W. to N.W. were reported from Liverpool and Holyhead. Connected with this disturbance, a rainfall of 1·44 inches was measured at Aberdeen (where the direction of the wind was N.E.) on Friday, at 8 a.m. A secondary low pressure system caused a renewal of showers and fresh westerly winds on Saturday. In Dublin the barometer fell to 29·525 inches at 4 20 p.m. of Thursday (wind, N.W.). On Wednesday the shade thermometers rose to 67·8°, on Friday they fell to 49·9°. The rainfall was ·168 inch on three days, ·109 inch being measured on Thursday. The wind was westerly (between S.W. and N.W.). Thunder was heard near Dublin on Thursday afternoon.

All through the period ended Saturday, the 11th, as in past weeks, the weather over North-western Europe was in a changeable, showery, and windy condition. There were, no doubt, frequent intervals of bright sunshine and genial warmth, but these were rudely broken in upon by squalls and drenching thundershowers of very local distribution. Two such showers fell over Dublin on Sunday afternoon, yielding more than a quarter of an inch of rain. In the course of the following night a shallow secondary depression appeared at the mouth of English Channel, whence it travelled eastward to the Straits of Dover. This system caused beautiful weather in Ireland on Monday—"Bank Holiday"—but a considerable fall of rain over the greater part of England. On Tuesday a new primary depression advanced over Ireland and Scotland from W.S.W. At 8 a.m. of Wednesday the barometer was down to 29·41 inches at Stornoway, and by 1 p.m. it receded to 29·52 inches even in Dublin, where torrents of rain with hail fell at 5 p.m. On Thursday also there were very heavy showers in places, and thunder and lightning occurred about 6 p.m. off the coast of Wicklow. At night the wind veered and rose to a moderate gale from N.N.W. On Friday a ridge of high pressure lay over Ireland, the barometer rising to 30·30 inches at Valentia Island, but next day the barometer gave way again, and the wind backed towards W., with dull cool weather. In Dublin the mean height of the barometer was 29·836 inches. Pressure ranged between 29·520 inches at 1 p.m. of Wednesday (wind, W.), and 30·190 inches at 9 p.m. of Friday (wind, N.W.). The corrected mean temperature was 58·4°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 57·9°. On Wednesday the screened thermometers rose to 67·9°; on Friday they fell to 50·2°. The rainfall was ·806 inch on four days, ·344 inch being registered on Wednesday. The prevalent winds were westerly (between S.W. and N.W.).

Cyclonic conditions prevailed over North-western Europe throughout the week ended Saturday, the 18th. The weather was consequently unsettled, with rather low temperature, clouded skies, strong westerly and north-westerly winds, and frequent showers. In Ireland, however, the rainfall was happily not so heavy or persistent as in previous weeks. At the beginning of the period the centre of a depression was found near the Shetlands, where the barometer read 29·55 inches, while it stood as high as 30·32 inches at Lorient in Brittany. Fresh to strong westerly winds and showers prevailed. At 8 a.m. of Monday the depression was off the extreme south of Norway. It had grown deeper—the minimum now being 29·30 inches. This system was quickly followed by another depression, which lay directly over Scotland on Wednesday morning, the barometer being down to 29·13 inches at both Aberdeen and Leith at 8 a.m. This disturbance caused moderate to fresh gales at exposed stations—first from S.W., afterwards from N.W., and large quantities of rain fell in Scotland and the Shetlands. During the two days following, the depression moved away slowly towards N.E. and finally northwards, but the strong cold N.W. winds belonging to it continued to blow until the end of the week. Indeed, the very decided rise of the barometer in the S.W. maintained steep gradients for N.W. winds all over the British Islands. In Dublin the mean atmospheric pressure was 29·892 inches, the barometer ranging between 29·432 inches at 9 a.m. of Wednesday (wind, W.N.W.) and 30·178 inches at 9 p.m. of Friday (wind also W.N.W.). The corrected mean temperature was 57·5°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 57·0°. On Monday the screened thermometers rose to 65·7°; on Thursday they fell to 48·1°. The rainfall was ·340 inch on six days, ·150 inch being measured on Monday. The prevailing winds were W. and N.W.

During the week ended Saturday, the 25th, atmospheric pressure was in an extremely unstable condition over North-western Europe, and the weather was consequently most changeable. At the beginning, an area of high pressure lay over the Bay of Biscay and Western France; at the close, an irregular depression was found almost in this same position. Until Wednesday, gradients for N.W. and W. winds existed in the British Isles—afterwards, a number of shallow depressions off the South of Ireland and in the neighbourhood of the English Channel produced easterly winds and downpours of rain over the southern half of the United Kingdom. On Sunday from six to eight-tenths of an inch of rain fell over the North of Scotland, in connection with a depression which travelled south-eastwards to Holland. Fresh, cool N.W. winds blew in Ireland, where very little rain fell at this time. On Tuesday the barometer gave way unsteadily, and a shallow secondary depression formed over St. George's Channel. The immediate effect of the equalisation of pressure thus caused was a spell of fair, though cool, weather in Ireland. A lunar halo at night was followed by unusual visibility and looming on Wednesday. This, in turn, ushered in a rain storm of considerable violence—·96 inch falling in London, ·95 inch in Dublin, and 1·15 inches at Greystones, Co. Wicklow. Dull weather, with freshening easterly winds, then held to the close of the week. On Saturday night there was a still more violent rain storm. In Dublin the mean height of the barometer was 29·935 inches, pressure ranging between 29·752 inches, at 5 45 p.m. of Tuesday (wind, W.N.W.), and 30·139 inches at 9 a.m. of Saturday (wind, E.N.E.). The corrected mean temperature was 56·8°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 56·5°. On Sunday the screened thermometers rose to 66·0°. On Monday, and also on Wednesday, they fell to 47·1°. The rainfall was 2·324 inches on four days, ·499 inch being measured on Thursday and ·451 inch on Wednesday, but no less than 1·369 inches as the result of the rain storm of Saturday night, when 2·130 inches were measured at Greystones. The prevailing winds were—first, N.W., then E.N.E.

The weather underwent a complete change at the beginning of the week ended Saturday, September 1. Rain ceased to fall, and conditions became very quiet, with dull, leaden skies, and light to moderate winds—at first from N., afterwards from N.W. or W. There was but a small diurnal range of temperature under an overcast sky in Ireland and many parts of Great Britain. This very decided change was brought about by the formation of an anticyclone over Ireland, where the barometer readings reached or slightly exceeded 30·30 inches on Tuesday and Wednesday. On the latter day the high pressure area spread out as a long, broad ridge to Central Europe. Within this area of dense air much cloud, or haze and fog, prevailed, and the winds were light and variable. To the northward of it, there were freshening westerly winds and some rain; to the southward, the wind was easterly, with bright skies and a wide diurnal range of temperature. On Thursday the thermometer is reported to have risen in the shade to 100° at Rochfort, on the west coast of France and to 90° at Perpignan, Pyrénées Orientales. At this time, hot sunshine was at intervals enjoyed in the centre and south-east of England, but scarcely a break in the cloud canopy over Ireland was observed. At the Ordnance Survey Office, Phœnix Park, Dublin, the total registration of bright sunshine during the week amounted to only 0·8 of an hour On Sunday night much lightning had been seen in the south of England, and it was at this time that the only rainfall of the week in Dublin occurred. In this city the mean atmospheric pressure of the week (including Saturday, September 1) was 30·186 inches, the barometer rising from a minimum of 29·931 inches, at 9 a.m. of Sunday (wind, E.) to a maximum of 30·304 inches at both 9 a.m. and 9 p.m. of Wednesday (wind, N. by W. and N.W. respectively). The corrected mean temperature was 56·5°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 55·9°. On Wednesday the screened thermometers rose to 61·8°. On Tuesday they fell to 50·7°. The rainfall was ·088 inch on Sunday. The prevailing winds were first N., then N.W. and W.

The rainfall in Dublin during the eight months ending August 31st amounted to 21·859 inches on 148 days, compared with 9·455 inches on 96 days during the same period in 1887, 17·264 inches on 121 days in 1888, 18·893 inches on 134 days in 1889, 18·386 inches on 137 days in 1890, 15·888 inches on 117 days in 1891, 17·279 inches on 131 days in 1892, 14·379 inches on 108 days in 1893, and a twenty-five years' average of 17·558 inches on 128·1 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in August, 1894, was 4·020 inches distributed over 16 days. Of this quantity 2·130 inches fell on the 25th, in addition to ·760 inch on the 23rd and ·550 inch on the 22nd. The total fall since January 1 amounts to 25·206 inches on 131 days, compared with 16·341 inches on 106 days in 1893, and 21·296 inches on 108 days in 1892.

COST OF LIVING AND DYING.

WE are informed that it costs the people of the United States each year to be born, $25,000,000; to be married, $300,000,000; and to be buried, $75,000,000; while to get drunk the people pay $900,000,000. It is also said that this bill for drunks is larger than the bill for all the bread and meat consumed by the same people.—*St. Louis Med. and Surg. Jour.*

PERISCOPE.

THE MYELOGENIC FEATURES OF LEUCOCYTHÆMIA.

In the August number of the *Practitioner*, Dr. M. A. Boyd, Physician to the Mater Misericordiæ Hospital, draws attention to the myelogenic features of leucocythæmia and to the new light thrown on its symptoms by Ehrlich's recent investigations on the subject. The presence in the blood of leukæmic patients of large numbers of eosinophile corpuscles (so called from the avidity they display in taking up eosine and staining with this medium) affords more reliable information as to engorgement of the bone marrow than the nucleated red corpuscles on which reliance has been placed heretofore. As pointed out in the paper, the nucleated red corpuscle is strongly confirmatory of myelogenic engorgement when present with other characteristic symptoms, but as it is found in other conditions involving an interference with blood formation it cannot be relied on in all cases. An illustrative case is detailed where the clinical symptoms pointed to spleno-lymphatic leucocythæmia only, but repeated examinations of the blood, and staining according to Ehrlich's method, revealed the presence of a myelogenic affection also. The examinations were carried out by Professor M'Weeney, to whose zeal and enthusiasm the writer pays a high compliment for the new light he threw on the case. The case did not differ apparently from the usual run of spleno-lymphatic cases of leucocythæmia except coming under treatment at an earlier stage than the majority of such cases do, before the lymphatic and splenic symptoms become the only prominent ones. When these latter predominate the myelogenic symptoms of such cases are, in the writer's opinion, completely obscured by the graver conditions then present until revealed by Ehrlich's method. Attention is called in the paper to the persistence in the blood of the patient whose case is given of large numbers of eosinophile granule cells, accompanied by corpuscles of transitional form, and the marked improvement following the administration of arsenic, where red extract of bone marrow completely failed, though indicated as a suitable remedy from a physiological point of view. In contrasting cases of undoubted triple engorgement, such as the one detailed, with those leukæmic cases of malarial origin, where the liver and spleen are enlarged from the beginning, Dr. Boyd considers the myelogenic symptoms can hardly be absent in these latter, as grave alterations affecting two of the formative organs of the blood could hardly exist and leave the third untouched. All cases, in his opinion, must be, from the nature of the affection, composite ones, those with prominent splenic and lymphatic symptoms being the most formidable, those with myelogenic least so. He bases these conclusions on the few cases terminating fatally with myelogenic symptoms alone, before the spleen and lymphatics show pronounced evidences of disease, and also by the doubts existing amongst competent pathologists that a pure case of myelogenic leucocythæmia is ever seen *post-mortem*. He considers we are too prone to regard all cases of anæmia for which we cannot find sufficient cause (excluding the chlorotic varieties) as due either to malnutrition from gastro-intestinal trouble, or malignant disease, and overlook the fact that it may depend on early myelogenic changes, probably the precursor of spleno-lymphatic leucocythæmia later on. He advocates a thorough and systematic examination and staining of the blood in all such anæmic cases, especially if accompanied by long-continued languor and pains in the bones, with or without hæmorrhages, and for purposes of diagnosis.

BRITISH INSTITUTE OF PREVENTIVE MEDICINE.

The Trustees of the late Mr. Richard Berridge have, with the consent of the Attorney-General, now handed over to the Institute the residue of the legacy, amounting to over £20,000, for the purpose of building and endowing a laboratory for the chemical and bacteriological examination of water supply, and the investigation of processes of sewage purification. The permanent laboratory is now in course of erection on the site secured by the Institute at Chelsea, but pending its completion a temporary laboratory has been fitted up in order that the work may be at once proceeded with. Mr. Joseph Lunt, B. Sc., F.C.S., formerly Assistant to Sir Henry Roscoe, has been appointed by the Institute to carry on this work under the Director's supervision. The Institute is now prepared to undertake the bacteriological and chemical examination of any samples of water which may be submitted. In addition to this the Institute is also prepared to undertake the bacteriological or pathological diagnosis of any pathological material. The demand for this kind of work has greatly increased—so much so that although Dr. Ruffer will still retain charge of this department, a specially trained bacteriologist has been appointed to work under his direction. Particulars may be obtained by writing to the Director at the temporary offices, 101 Great Russell-street, London, W.C.

SOUVENIR OF BUDA-PESTH.

This neatly-bound volume of illustrations of the gay Hungarian capital was presented by the Directors of the Franz Josef Aperient Water Spring to the members of the Eighth International Congress of Hygiene and Demography, held at Buda-Pesth in September, 1894. The views are very striking and convey a good impression of the splendid city on the Danube. The first picture in the series is an excellent likeness of his Majesty Franz Joseph, Emperor of Austria and King of Hungary, the patron of the Congress. The testimonials in different languages in favour of the Franz Joseph Mineral Water interspersed throughout the book will amuse, if they do not instruct, the reader. The English language also seems to present insuperable difficulties to foreigners—witness the following sentence:—"The Franz Josef aperient water through its repead, successful and easy desolwing power especially in such cases as indegestion and reachness of the blood has always had the greatest success." The English descriptions of some of the illustrations also leave room for improvement. "Univ. Surgery Institution" means "The University Department of Clinical Surgery." "Univ. Inquest Institution" is really "The Anatomical Department of the University." "Univ. of Life Instruction" is "The Physiological Department of the University." However, leaving these defects out of sight, the handsome volume remains an interesting souvenir of a historic scientific gathering. Any member of the medical profession who was unable to attend the Congress but who would like to have this descriptive and illustrated souvenir of Buda-Pesth, should communicate without delay with Messrs. Burroughs, Wellcome, & Co., of Snow Hill Buildings, London, E.C., who have been entrusted with a hundred extra copies for distribution.

"DOC."

THIS, it would seem, is a playful abbreviation, not uncommon in the United States. It is not, we must admit, reverential, but we should not have supposed that such alarming consequences would follow from its application as a writer in the *National Medical Review* prognosticates. "If," says he, "it has been your misfortune to be called 'Doc.,' and if this recognition has become at all general among your friends, you might as well move to some other place. A man may be called a thief, a liar, and a dead-beat, and yet he may prosper and live upon the fat of the land. But once let him be called 'Doc.' and his professional success is at an end. We would prefer to spend a night in the station-house, so far as its effects on our professional success is concerned, rather than to have our friends notice our approach by saying, 'There comes Doc.' If a man calls you 'Doc.' you need never expect a penny from him for any professional services you could render. His answer is sure to be, 'All right, Doc., in a few days that will be all right.' 'Doc.' means disaster. 'Doc.' is the culmination of all calamity. 'Doc.' is a catastrophe given at one stroke. 'Doc.' is the warning that we have reached the extreme limit of our usefulness. 'Doc.' is the hand which points us to the next town. Shun it, my young friend, as you would flee from a Kansas cyclone or a prairie fire. Knock the man down who first dares speak it to you, and call upon the whole medical profession for vindication of your righteous deed!"

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

A Linked Truss.

THE Link Shell Truss Company, 141 Wardour-street, London, W., have manufactured a new kind of truss, for which they claim the advantages of great flexibility and easy adaptation to the person of the wearer. The truss is fitted with a series or chain of links fastened together with a number of split steel spring rivets, and in this way it is rendered flexible and adaptable to the various movements of the body.

This linked truss is also fitted with an ingenious hip-joint regulator and a soft hollow shell pad perforated for ventilation. By these contrivances the comfort of the wearer is enhanced, and the truss is rendered safer by the equalisation of pressure which the chain of links and the hip-joint regulator together tend to secure.

Diaphtherin.

This is a new antiseptic which has of late attracted a good deal of attention in scientific medical circles in Germany, and has been introduced into the United Kingdom by Messrs. Burroughs, Wellcome, & Co.

The scientific name of diaphtherin is oxychinaseptol. It consists of two molecules of ortho-oxychinolin, one molecule of carbolic acid, and one of sulphuric acid. It may be regarded as an ortho-oxychinolin sulphate, containing phenol in a state of combination similar to that of water of crystallisation in other substances. Its chemical formula is $C_{24}H_{22}SN_2O_7$. Its melting point is between 78° and 83° C. Diaphtherin of commerce is a bright sulphur yellow powder of peculiar but slight odour. It is soluble in equal parts of water, but on standing for some time crystallises in transparent, amber-yellow hexagonal plates. It is powerfully antiseptic and comparatively non-poisonous. Its bactericidal and kolyseptic properties are well-marked. According to Prof. Emmerich and Dr. H. Stabel, both of Munich, a solution of only 0·3 per cent. kills *Staphylococcus pyogenes aureus* in ten minutes; a solution of only 0·1 per cent. destroys Koch's cholera bacilli in the same time. Dr. Stabel concludes that its kolyseptic action is far superior to that of lysol or of carbolic acid.

Dr. Kronacher, of Munich, has employed solutions of diaphtherin of from one-half to two per cent. (generally one per cent.) in all classes of surgical operations, and he especially praises its excellent action in burns and in ulcers of the legs. Dr. Stabel considers that it is peculiarly adapted for irrigation of hollow cavities. In gonorrhœa, also, 1·5 per cent. solutions did good service in his hands. Dr. Rohrer, of Zurich, employed the drug in diseases of the ear and of the nose (ozæna, chronic simple rhinitis, nasal polypi, empyema of the nasal cavities, &c.), and with gratifying success. In dental practice, lastly, Hamecker and Brandt speak favourably of the utility of this agent. It is manufactured by Meister Lucius and Brüning, at Hoechst-o-Main.

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THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

NOVEMBER 1, 1894.

PART I.

ORIGINAL COMMUNICATIONS.

Art. XVI.—*The Ethics of Operative Surgery.*[a] By Sir William Stokes, Ch.M. Univ. Dubl., F.R.C.S.I.; Surgeon-in-Ordinary to Her Majesty the Queen in Ireland; Past President of the Royal College of Surgeons and of the Pathological Society of Ireland; late Hon. President of the International Medical Congresses at Berlin and Rome; Member of the German Surgical Society, &c., &c.

It is with mingled feelings of pleasure, misgiving, and fear, that, at the request of the Medical Board of this Hospital, I venture to offer a short Address to the friends, supporters, and students of this time-honoured institution. The misgivings and fears, doubtless, largely outweigh the pleasure, as is always the case when the responsibility is great. Some have held that Inaugural Addresses are useless, out of date, and should be, as they are in most clinical hospitals in Dublin, discontinued. I confess I am one of those who have never been very enthusiastic about such Addresses, and I am particularly devoid of enthusiasm when it falls to my lot to deliver one. However, there is much to be said in favour of making some formal commencement of the winter session—a commencement of what is to be our common and, I trust, happy toil.

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[a] An Address introductory to the Session 1894-5, delivered in the Meath Hospital and County Dublin Infirmary, on Monday, October 8, 1894.

If no other purpose was served, a formal opening of the session affords an opportunity of giving a cordial greeting to those who have come back to resume what is likely to be their life-work, and a warm welcome to those who are about to commence it; both of which, on the part of my colleagues and myself, are offered in all sincerity.

It is not my intention to give you much advice, partly because I think that advice unsought is seldom valued, and partly because I think that, being no longer schoolboys, but men engaged, or about to engage, in one of the most strangely complex of all human sciences, and one, the daily progress of which, more particularly in surgery, is so rapid that it is hardly possible to keep pace with it, it would be almost insulting to you to urge the necessity for unceasing industry, for punctuality in your attendance at lectures and hospital, and for leading a steady, temperate, and moral life. I will assume, and, I am sure, rightly assume, that you are just as alive to the importance of these requirements as I am. All I would ask of you to remember is that, as Billroth said, "a student means a person who studies, and that to study does not consist in converting oneself into a mere passive receptacle for positive knowledge, but into one who can awake such knowledge into life. Let what you hear," he said, "enter your mind fully, warm you up, and so occupy your attention that you must think of it frequently; then the true pleasure and appreciation of this mental labour will fill you." You should be sure of two things, as George Eliot has said, "To love your work, and not be always looking over the edge of it, wanting your play to begin. And the other is, you must not be ashamed of your work, and think it would be more honourable to you to be doing something else." The student's duties and responsibilities are, in truth, embodied in the Scriptural words, "Whatsoever thy hand findeth to do, do it with thy might."

But if we expect and look for the fulfilment of these duties on the part of the student, what may he fairly and reasonably look for from his teacher? He may well expect that the teaching should have the elements of vitality in it, and not be merely "a sapless root," as Ruskin said, "capable at best of producing a shrivelled branch," but a reality, not a sham, and something more than a dreary catalogue of stale facts extracted out of some antiquated and discarded text-book. The student has a right to expect that his teacher be not satisfied with the stock of knowledge he has brought with him from the schools, which, if not continually vivified, refreshed, and increased by new experiences and acquisitions of knowledge, soon undergoes a process of acute atrophy, withers, and rots.

The student, a severe but, on the whole, a just critic, is well aware of the truth embodied in the old German adage, *Raste ich, roste ich*, "If I rest, I rust," and soon appreciates at their true value those who, wrapped in a thread-bare cloak of self-sufficiency, foolishly isolate themselves from their fellow-labourers, refuse to read the signs of the times, or to be influenced by the progressive spirit of the age, and immured in the mephitic atmosphere of their squalid and pigmy hovels, think the world regards them as kings.

As fellow-students, teacher and student should work together, and give and receive from each other both impulse and inspiration. A great teacher and scholar, the late Professor Jowett, has truly said, "Teaching should have warmth as well as light, and should be an interchange of mind with mind, quickened, animated, and cherished by the power of sympathy." A peculiar responsibility devolves on a teacher in these countries. Belonging, as he does, to a great, a wide-spread, and ever-extending empire, that embraces nationalities in every part of the habitable globe, he has a duty that belongs to the teacher of no other country; and, as our illustrious Graves observed, "he exercises an influence without parallel or extent, having opportunities of benefiting or injuring his fellow-men that are incalculably great."

It has been my lot on various occasions to point out the giant strides in operative surgery that have been the outcome of the great revolution in the treatment of wounds initiated by Pasteur and Lister, and it will always be among the happiest recollections of my life that I was among those who first systematically and formally adopted Listerian antiseptic practice in Dublin. Much opposition and ridicule were encountered, but it has survived all such brainless depreciation, as of necessity it was bound to do, and it now occupies a position in surgical estimation from which it can never be dislodged. At times, indeed, faint and foolish echoes of opposition are heard, such as paragraphs headed "The Bursting-up of Listerism," "Death of the Carbolic Craze," "*Delenda est Carthago*," &c.; but the dreary farce is thoroughly played out, its frequent repetition having long since ceased even to excite a smile. The great principle of antisepsis as developed by Lister is now recognised and adopted wherever scientific surgery is taught and practised. And here I would venture to express the hope that the

Committee, who are about to make large and much-needed additions and structural changes in the hospital, will aid in bringing the operating theatre into a condition more in harmony with modern antiseptic requirements than it is at present. The outlay required would not be great, and the benefit to the hospital, to surgery, and to the patients, would be untold.

If anything depreciatory of antisepsis could be said, it might be that in the minds of some zealous operators, it may have had a tendency to beget an overweening confidence in the powers of our art. The result has been that the ethical principles which should always guide us in our operative work have, at times, I think, been neglected, and operations undertaken that, in the present state of our knowledge, have, I fear, overleaped the pale of legitimate surgery. I allude more particularly to such procedures as pulmonary resection in cases of tuberculosis of the lung, transplantation of bones and periosteum from the lower animals for osteogenetic purposes, chiselling away projections of the bodies of the vertebræ for the relief of anterior pressure on the cord in cases of fracture with displacement of those bones. Such procedures are fraught with dangers which are so insuperable, and over which antisepsis can exercise such little influence in their final results, as to render them, at present at all events, unjustifiable.

Among other cases, too, in which I think of late years the *nimia diligentia chirurgiæ* has been unduly developed, I would mention some forms of intestinal obstruction for which laparotomy has, with some surgeons, become almost the routine practice. Of course, if there is clear evidence of mechanical obstruction—as, for example, in volvulus, intussusception, or obstructions from adhesions and adventitious formations resulting from peritoneal inflammation or new growths—the indications for laparotomy are comparatively clear and distinct. But the case is different when the obstruction is due to other causes—*e.g.*, to defective nerve power, more particularly when it depends on senile debility, or a paralytic condition depending on certain local inflammations, such as ileus and appendicitis. I do not deny that there has been a very large proportion of recoveries from operations performed under these conditions; but I have a very strong suspicion, one almost approaching conviction, that a very considerable number of them would have had an equally good chance of recovery without the operation at all. On this subject Mr. Jonathan Hutchinson, one of the most thoughtful and philosophical of existing surgeons, expresses his opinion, that "if ever it should become the common practice in intestinal obstruction cases to operate early, and without attempting relief by other means, the fatality of this class of cases, as a whole, would be greatly increased." When one reads of a statistical record recently made of 450 cases of appendicitis, for which laparotomy was performed, one feels inclined to paraphrase the criticism of the French General on a certain famous military operation in the Crimean War, and exclaim, "*C'est magnifique, mais ce n'est pas la chirurgie!*"[a]

Another instance I would adduce, in which the ethical principles that should guide us in our operative work have been overlooked—I allude to the operative treatment of microcephalic idiocy. The deficiency of brain power in these cases is believed to be due to a premature closing of the sutures and fontanelles, and, as a result of this, space is not given for a sufficient development and growth of the brain. To relieve this condition and give room for the brain to develop, it has been proposed by Lannelongue to perform either a linear or a circular craniotomy, or a *craniotomie à lambeaux.* Lannelongue, in 1891, published a series of twenty-five cases of craniotomy performed on children from eight months to twelve years of age, when only one death intervened. The results, immediate as well as remote, were alleged to be most favourable, especially as regards improvement in intelligence. In consequence of this very surprising result, the operation was promptly repeated by various surgeons in Europe and America, but, alas! with very different results, and the suspicion soon became unavoidable that the continuance of such success was not to be counted on—in fact, that the colours in the original picture were of somewhat too roseate a tint. Prof. Jacobi, in the able Address he delivered at the last International Medical Congress in Rome, sounded a warning note in reference to this procedure. He pointed out how many-sided is the ætiology of the sad condition of microcephalic idiocy, and that although insufficient cranial development may sometimes be a determining factor in arresting healthy brain growth, yet that such a condition is but one out of many others that predispose to mental deficiency. This is not the place to discuss the ætiology of idiocy, but I may mention that in the Address I have already alluded to, no less than eighteen different pathological conditions associated with it were enumerated, in not one of which could any form of craniotomy or craniectomy have possibly proved of the slightest advantage.

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[a] The criticism alluded to was made in reference to the famous cavalry charge at Balaclava, when one of the French Generals looking on, observed: "C'est magnifique, mais ce n'est pas la guerre."

At the meeting of the German Surgical Society in Berlin last April, Tillmanns, of Leipzig, read a communication on craniectomy in microcephalus. He is unfavourably disposed to the operation, chiefly on the ground that in microcephalic heads there is almost always a congenital malformation of the brain which is uninfluenced by any abnormality in the calvaria. These changes, as Prof. Fraser and other observers have pointed out, are not confined to the brain alone, but are found affecting the whole of the central nervous system—in truth, the developmental changes are so profound in the microcephalic condition that no closure of sutures, or opening of sutures could influence them in any way. The sutures and fontenelles are, in Tillmanns' experience, normally developed in this condition. It is only then, in the very rare cases of microcephalus, with premature closure of them, that craniectomy could have any possible standpoint, and on two such cases Tillmanns operated. The results were not encouraging. In the first case, that of a child aged a year and nine months, no improvement was observed, and in the second case, also of a child aged two and a half years, convulsions supervened some weeks after the operation and the patient died. Again, have there been no cases of microcephalus with premature ossification of the sutures and fontanelles in which there was the reverse of mental deficiency? One of the most brilliant meteors in the realms of poetry and romance that ever flashed across and illuminated the Western hemisphere, Sir Walter Scott, afforded, it is said, an example of this condition, and one trembles on thinking what the world might have lost had some enterprising and too zealous operator performed a *craniotomie à lambeaux* on him in his early childhood!

But let it not be considered that I take too pessimistic a view of the situation. Far from it. What I do think is that a sufficient discrimination of the suitable cases is not made, and cannot be made until our power of discriminating more accurately the various ætiological factors connected with mental deficiency is increased. Until that is done the difficulties surrounding discrimination will remain well-nigh insuperable; but, happily, there seems every prospect that in the near future these difficulties and obstacles will be removed.

A consideration of surgical ethics that frequently exercises the mind of the operating surgeon is the question of the principles that should guide him in dealing with cancerous growths. The question as to what constitutes justification in dealing with them in an operative way is ever present and surrounded with difficulty, as the result of such interference must end in weal or woe, satisfaction or regret to the patient as to the operator. Excision may, on the one hand, bring relief from suffering, prolongation or even saving of life; but, on the other hand, it may mean a fatal and disastrous stimulus to the morbid process. In truth, as regards cancer, we must confess that as yet we see through a glass darkly. We stand on a very small oasis of knowledge, to borrow a happy illustration of Lord Salisbury, "one surrounded by a wilderness of *nescience*." What we do know, however, is that success or failure very largely depends on the period at which operative interference is undertaken, and that excisions for cancer made during the early stages of its development are far more likely to be attended with subsequent immunity than at a later period. It has, therefore, been held, and I think rightly held, that a more severe operation is justified in the earlier than in the later stages—that is to say, that for the smaller developments of cancer the larger operations should be performed, and *vice versâ*; the surgeon in the latter case limiting his actions to the narrowest bounds, as, for example, in fungating tumours of the breast, and extensive cancer of the tongue, palate and jaws. This is, as you are aware, the reverse of what is usually done.[a]

In the latter the ethical problem has to be solved as to whether we are ever justified in performing an operation when the chances of a permanently good result are not possible. In our attempts to solve this we should allow ourselves to be influenced by two considerations only, as my late colleague, Mr. Robert Adams, used to say, the first and foremost being the welfare of the patient, the other the credit of surgery. Our principal object and one of our highest aspirations should be that these two, which ought to be indissolubly united, should never be separated in our practice.

I have already spoken of those cases of cancer in which operations for their supposed cure are at times, in my opinion, wrongly undertaken, and hopes held out of recovery which only too often prove delusive. In such cases the disease is no longer a local one. It has crossed the frontier, so to speak, and taken up an impregnable position, from which, like a upas tree, it diffuses its malign influence far and wide. But if the fatal progress be checked in time a different result may be anticipated. This is not the occasion to enter into any clinical details, but I could adduce many instances of cancer of the tongue, jaws, breast, rectum, and other organs, where free excision done at an early stage has been attended with distinct and permanent relief.

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[a] See Lancet, Jan. 9, 1886.

If in the case of certain forms of intestinal obstruction, of cancer, of appendicitis, of microcephalus, and of other conditions I might indicate, there has been of late too great a readiness to resort to operative measures, let us consider for a moment the conditions in which surgeons at times do not resort to them with sufficient alacrity. First among these I would mention membranous croup and diphtheria. On the subject of the therapeutic value of tracheotomy in such cases there is, as many here are aware, very great divergence of opinion among surgical authorities; some maintaining that tracheotomy is distinctly contra-indicated, while others have swung the pendulum as far as it can go the other side, and hold that "the surgeon who would stand by and see a child die of suffocation in diphtheria without intubating or opening the trachea is unfit to practise his art." Without going so far as to endorse this somewhat exaggerated statement, I cannot but be of the opinion that those who oppose the operation in these cases are unmindful of the causes of death, which are—exhaustion, sepsis, and imperfect oxygenation, and that an opening into the trachea not only in most cases promptly relieves the first and third of these, but enables one to remove the false membrane, teeming with bacilli and steeped with toxin. The fact that the mortality of the operation is very great should not deter one from performing it. It rather furnishes an argument to me, at all events, in favour of operating, if possible, at an earlier period than is usually done; before, namely, exhaustion becomes extreme, and the system is hopelessly saturated with septic agencies.

Another instance in which early operative interference is imperatively called for is that of strangulated hernia. Now, there is little difference of opinion on this subject, but in the earlier periods of my professional career it was different, and I have on more than one occasion, yielding to the advice of those more experienced than myself at the time, had to regret having postponed operative interference in these cases; whereas, especially since the introduction of antiseptic surgery, that "brilliant victory," as the noble President of the British Association, the Marquis of Salisbury, K.G., recently termed it at Oxford, I cannot call to mind a single instance of failure I have had, or witnessed, when the strangulation was recent and the operator capable of performing this delicate exercise of our art with ordinary dexterity. When these conditions were not fulfilled, and especially the latter, a very different and calamitous record might be given.

Another instance in which surgical procrastination is, in my opinion, much to be deprecated is in the case of purulent pleural effusions. My belief is that the routine treatment by simple paracentesis is, in the majority of instances, unlikely to be attended with any permanent good result, and that if this treatment *alone* be adopted or followed, not only will there be, as a rule, a rapid re-accumulation of fluid, but time will be given by the delay for changes to occur which will militate strongly against success being obtained after any more radical method of treatment is adopted, such as free drainage and thorough irrigation, or excision of ribs, as recommended by Esthlander.

It was extremely interesting as well as gratifying to me to learn that recently, in the Medical Section of the International Medical Congress in Rome, the performance of multiple costal resection in cases of purulent pleural effusions was strongly advocated as a primary operation. Many present here to-day are aware that this practice has been for several years advocated and practised in numerous instances, and with gratifying results, by Sir Philip C. Smyly and myself.

These are a few out of many instances I might mention in which a too precipitate or too tardy surgical operative interference is equally to be deprecated; under such circumstances, leading to results which are often as disheartening as they are calamitous and damaging to the reputation of surgery as a science and art. One of the chief objects and advantages of clinical study is to learn not only the best time to operate, but also how to discriminate the cases in which by operation reasonable hopes of permanent recovery may be entertained; those in which temporary relief may be obtained; and, lastly, those in which the surgeon should distinctly decline to undertake any active operative measure. To do this with success, and to acquire even a limited knowledge of a science which so frequently presents problems to solve, than which none are more complex, more difficult, or of greater import, involving, as they do, the stupendous issues of life or death, requires not only great natural aptitude, but also a lifetime of constant, unremitting, and bitter toil.

It has been said that a surgeon differs from a poet in this respect, that, whereas the latter has only to be born and not made, the former has both to be born and made, and this naturally leads me to say a few words on the process which we now adopt for making him.

A short time ago a distinguished surgical friend of mine, on learning something of what I thought of discussing on the present occasion, wrote to me—"Don't touch medical education; we are all sick of it." It occurred to me that there was a strong element of truth in the remark, and for a time I abandoned all idea of saying anything on the subject; but then the question occurred to me, why is it that we are sick of it? The answer promptly suggested itself: Because modern reformers in medical education—and to these the definition that was once given of "gentlemen farmers," as being persons who were "always making improvements that made things worse," might fitly be applied—fell into the great initial mistake of forgetting that what most urgently required improvement was preliminary training, and not the professional curriculum and examination. It was a wrong or false start, so to say. They began at the wrong end, placing the cart before the horse, and the outcome of it has been disillusion, disappointment, and the development of that nausea from which my friend spoke of himself and others as suffering. There is good reason for believing, too, that this unpleasant morbid condition is very prevalent in student circles, and painfully acute when they learn almost every year of fresh additions being made—Pelion heaped upon Ossa—to the already overloaded curriculum, and observe both the confusion and uncertainty resulting from the continual changes, lastly getting the gratifying intelligence that another year has been added to the lengthened period of their pupilage.

What should have been done was to establish for each division of the Kingdom a conjoint preliminary examination in Arts, in which some of the subjects now in the professional curriculum should have been included, such as Elementary Chemistry, Physics, and Biology. The State would have in such an examination a guarantee that every member of our profession had received a liberal extra-professional education. It should be conducted by persons unconnected with any of the licensing bodies and appointed by the State, and there should be no exemptions except to University graduates.

For our professional education I should like to see a system adopted analogous to that of the Arts course at the universities—viz., that of keeping terms either by examination or by lectures. Two terms by examination should only be required as obligatory on all—one at the end of the second, and the other, the final, at the termination of the fourth year. By this method those who felt they could make more rapid and genuine progress by reading and clinical observation, would not have to complain of having to attend so many systematic courses of lectures. On the other hand, those who considered they would derive more advantage from lectures would be freed from the necessity of passing more than the moderation and final examinations. To insist on every student, irrespective of his tastes, his habits, or his aptitude, going through the same routine of lectures and examinations, seems to me to be as unwise as it would be to insist on the same sized boot being worn by every child when learning to walk. Compelling all to lie on a Procrustean bed and submit to an annual crushing under the wheels of the modern examinational Juggernaut, is the worst of the many errors made by recent educational reformers. To many the frequent recurrence of these examinational ordeals has a paralysing effect, and in many instances destroys what is one of the most important motive forces—namely, self-confidence.

I should be the last person to say anything in disparagement of the General Medical Council and its work. It has, without doubt, effected a vast amount of good, and deservedly earned the esteem and respect of the profession and the public, but in making the preliminary training the last instead of their first consideration a great error was committed. Had that mistake not been made, the present curriculum would not have been so crowded, and students would not have been brought into the unhappy condition which Mr. Greig Smith, speaking recently at Bristol, aptly compared to that of a Strassburg goose, fattened and crammed until not a healthy but a diseased condition is produced. The excess of the number of topics examined on, which number is increased every year, has the disastrous effect of causing a neglect of subjects which, having regard to the modern developments of surgery, are more than ever essential—I mean Anatomy, Physiology, and Practical Operative Surgery. Nothing could be more deplorable than the arrangement that the study of the two former subjects should practically cease at the end of the second year of professional study. Our predecessors who required a high standard of knowledge of these subjects at the final examination were wiser in their generation than their successors. What I have termed the modern developments of surgery loudly demand a reconsideration of the present position in this respect, for there are none of the recent advances in cerebral, thoracic, or abdominal surgery that have not been the direct outcome of improvement in our knowledge of these sciences.

To appreciate the merits of these operations, therefore, and, still more, to perform them with hope of success, it is not merely desirable but essential that a much greater weight should be given to the study of Anatomy, Physiology, and Practical Operative Surgery than at present is the case. But under existing circumstances this is impossible. The student, wearied and weighed down by an accumulation of courses, and with the sword of Damocles in the shape of an annual sessional examination ever hanging over his head, has neither time nor inclination to do anything that in student parlance will not "pay" at the examinations. By a recent unwise ordinance of the General Medical Council, the period of pupilage has been extended to five years, and in my opinion a greater blunder was never made. For a strong man it means a year's further exclusion of all time for thought or the pursuit of any original inquiry, and for the weak man it means a continuance of worry and no commensurate advantage.

The main argument that has been brought forward in favour of lengthening the period of pupilage is, that an extended period is the rule or custom in many other countries, and that as we should not be behind our neighbours, the same arrangement should hold good here. But in answer to such rubbish it may be asked, do the sick poor in those countries get better, more skilful, or more cheerfully offered medical and surgical aid than they have hitherto got here, or are the duties that devolve on the local medical officers discharged more conscientiously? I speak not from mere heresay, but from considerable personal knowledge, and I say, unhesitatingly, that the Poor Law Medical Officers of Ireland, and the practitioners generally throughout the United Kingdom, are not merely equal to, but in the great majority of instances are more highly qualified, and have higher professional attainments than, the corresponding members of our profession in France, Spain, Italy, and Scandinavia.

Professor Mahaffy, in an able article in the *Nineteenth Century* (Aug., 1893), mentions what the old doctrine of Education was—one which now appears to be abandoned—namely, "all we can teach the young out of the infinite of what can be known, is how to know one or two things, so that while the knowledge of other things may be made easier, the knowing of other things inaccurately may be despised." The importance of the principle of this doctrine is embodied in the well-known adage, "Beware of the man of one book." It seems to me that the outcome of most modern changes in medical education is in the direction of making students read not few books well but many books badly, and that the brain has been looked upon too much as an organ with an unlimited capacity for retaining, digesting, and absorbing, in a given time, every ascertained fact not only of medicine and surgery but also of all the sciences ancillary to them! The attempt to carry out this arrangement is fraught with real injury to many and disaster to some. I can speak with some confidence on this subject after a long experience as an Examiner both here and in Oxford, and I have satisfied myself over and over again that the failure of a large proportion of candidates to answer up to the required standard was due not to want of diligence and honest conscientious work on their part, but simply to brain exhaustion from attempting to overload it with facts which were believed to be essential. When we remember that the subjects a knowledge of which is required include Anatomy, Physiology, Medicine—theoretical and clinical—Surgery, Midwifery, Gynæcology, Histology, Forensic Medicine, Toxicology, Hygiene, Chemistry, Operative Surgery, Pathology, Botany, Ophthalmology, Aural Surgery, Biology, Vaccination, Materia Medica, Therapeutics, Physics, Pharmacy, Political Medicine—whatever that is—and Mental Disease—the wonder is that the last-named is not frequently observed among students as an outcome of so voluminous, varied, and comprehensive a course of study.

But the chief objection that might reasonably be urged against such a system is that it promotes inaccuracy and superficiality—two things than which nothing could be more injurious, in truth fatal to the best interests, not alone of the individual but to the science which is the work of our lives, and our daily toil. What I should like to see, and hope to see is a lightening of the curriculum, by assigning some of the topics I have mentioned to ante-professional education, and having others (such as Ophthalmology, Aural

Surgery, Mental Disease, and Hygiene) made the subjects of post-graduate study. Such changes would admit of a curtailment of the period of pupilage, and afford a longer time for the study of Anatomy, Physiology, and Practical Operative Surgery. Opportunity, also, would be afforded for a more efficient study of Sanitary Science or Public Medicine, which is now engaging so much attention, and to which so signal an impulse has been given by the earnest efforts of the distinguished representative of Medical Science in Oxford, Sir Henry Acland.

But whether that consummation, which is so devoutly to be wished for, be ever realised or not, your present course of action is clear and distinct, namely—to throw yourselves into the work you have chosen with determined will and all the strength and energy that God has given you, and not to cease but to continue it when the period of your pupilage is ended, heedless of all the jealous detractors and ignorant babblers that possibly you may meet with, who may, as Hamlet said, fret you, but cannot play upon you. The greatness of your life's work should make you treat with scorn all their futile attempts to raise obstacles on your path, to undermine your professional character, to irritate and vex you. Remember that your life—and you should glory in the fact—must be one long studentship, and that the best part of the knowledge you must seek for is never obtained through the sole desire to gain wealth, state recognitions, and rewards. They may, it is true, command homage, but they can never by themselves secure esteem. "No man," it has been said, "can be great—he can hardly keep himself from wickedness—unless he gives up thinking much about pleasure or rewards." The honour they confer is fleeting, soon vanishes, and is forgotten. But that which does last, long after death has closed the scene, which lingers like the after-glow of a golden sunset, casting a halo round a cherished memory, is the respect which is conferred on all who, actuated by a deep and overmastering sense of the sacredness of their calling, and of the infinite pathos of human life, work, not so much for themselves as for others, for the profession of their choice, and for the fair fame of the land that gave them birth. These were the motive forces which animated and stimulated to effort such men as Cooper and Lathom, Syme and Alison, Crampton, Porter, Colles, and Graves, the best part of whose knowledge was gained by sympathy with human suffering, and by that enthusiasm for their work which we should all hope and pray for—the sympathy which is "the impassioned expression on the face of science," and enthusiasm the "genius of sincerity," without which even Truth accomplishes no victory. We should ever bear in mind the last words of the great Velpeau, who, when Death beckoned to him with his icy hand, whispered to the faithful friend beside him, "travaillons toujours." And so, with a lofty ideal to live and work up to, set out, "heart within and God o'erhead," and accomplish honestly and truthfully the task you have chosen to do, always bearing in mind that every forward step made by honest work, be it great or be it small, be it the assertion and establishment of a great principle, or but the faithful record of a case, may possibly be the means of bringing welfare and happiness, not alone to an individual, a class, a country, or an era, but that the good achieved may be, as was said of the work of Shakespeare—

"Not of an age, but for all time."

Art. XVII.—*Hydrocele of the Neck.*[a] By W. I. Wheeler, Past President of the Royal College of Surgeons, Ireland; M.D. and Master of Surgery, Dublin University; Member of the Royal College of Physicians of Ireland; Surgeon to the City of Dublin Hospital; and Lecturer upon Clinical and Operative Surgery, &c., &c.

In this communication I purpose to relate briefly five cases of hydrocele of the neck which have come under my observation, also the result of the treatment I adopted, concluding with remarks upon this comparatively rare affection:—

Case I.—The first case of hydrocele of the neck was sent to me by Dr. Ashe, and was admitted into the City of Dublin Hospital. The patient, a male about twenty-seven years of age, suffered from a tumour situated chiefly in the left posterior inferior triangle of the neck. The swelling was oblong in shape, and measured about seven inches in length and about four and a half inches in width. He stated that as long as he could remember there was an elevation in the situation of the present tumour, that he could feel a softness under the skin, and that within the last few years the swelling had increased until it had reached the size described. He suffered occasional inconvenience from tingling and numbness in his left arm and from œdema in the back of his hand. Fluctuation could be readily detected; there was not any discoloration of the integument, nor any apparent inflammatory action; his general health was good; he was not muscularly well developed. The diagnosis was cystic tumour, and finally hydrocele of the neck. The third day after his admission a fine aspirating needle was introduced, and about eight ounces of clear fluid withdrawn; a pad was then placed over the aperture made by the needle, and pressure exerted over the site from which the fluid had been evacuated. Within seven or eight days the cyst had refilled, when I again aspirated with a larger trocar; and upon this occasion I carefully examined the extent and character of the interior of the sac. I was able to satisfy myself that not only was the cavity under the deep cervical fascia, but that it extended forwards and backwards to a considerable depth. I now enlarged the aperture made by the trocar, and found the cavity of the cyst had apparently a serous lining. I next introduced a seton through the sac, which I injected with iodine, and finally scraped the interior; some inflammatory action followed. Contraction of the cavity gradually took place. He was discharged from hospital seven weeks from the date of his admission. There was then considerable thickening of the tissues, but the cavity was obliterated. I saw this man fourteen months after, and notwithstanding that he was of spare habit it was difficult to discern any difference between the right and left sides of his neck.

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[a] Read before the Section of Surgery, Royal Academy of Medicine in Ireland.

I regret that the photograph of this case has been mislaid.

Case II.—The second of these cases occurred in a child who was brought under my notice when three years old, sent to me by Dr. M'Evoy. The enlargement reached from the upper part of the right side of the neck into the axilla of the same side; it had increased slowly from birth until about two and a half years of age; on different portions of this congenital cyst there was slight redness with a glazed and shining surface. This was a multilocular cyst. Septa intervened; a trocar would sometimes travel from one collection to another, but several of these cysts had to be evacuated separately. After the tapping I introduced one or two setons; a continuous drain followed. I afterwards inserted setons through all the cysts, some passing from one cyst to another. The cavities were syringed with carbolic acid lotion, and afterwards with perchloride of mercury. Some of, and finally all, the setons were withdrawn, and the interior of the cysts cauterised. Inflammation and suppuration followed. The child recovered after a lengthened illness, having suffered considerable constitutional disturbance.

Figs. I. and II. represent the child before and after operation.

Case III.—The third case was that of a boy seven years old, whose mother states that from childhood he suffered from a small tumour in the posterior inferior triangle of the right neck about the size of an almond or small nut. This tumour had gradually increased in size until it occu-

Fig. I.

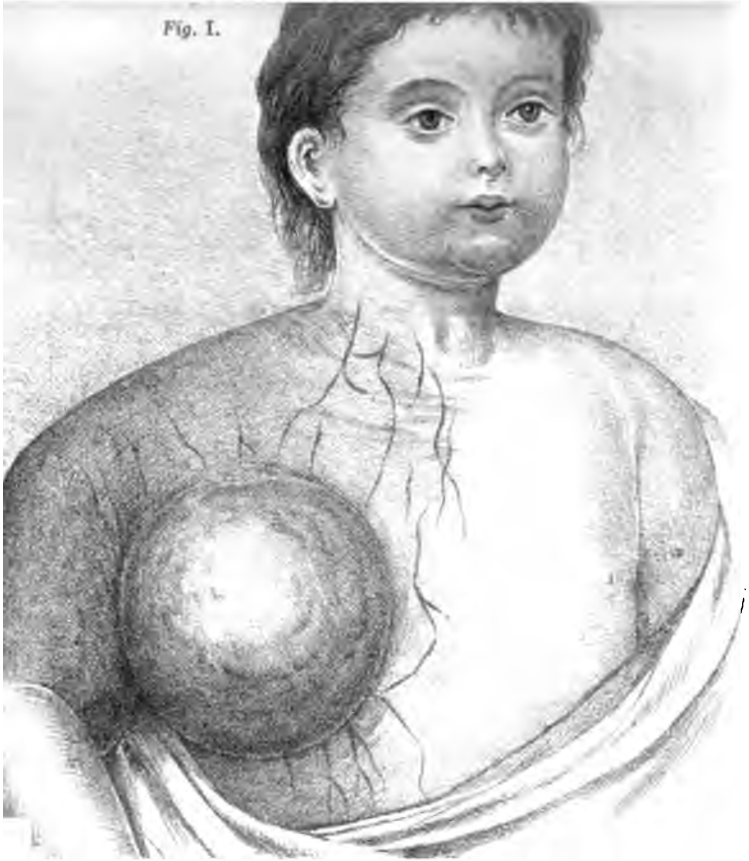
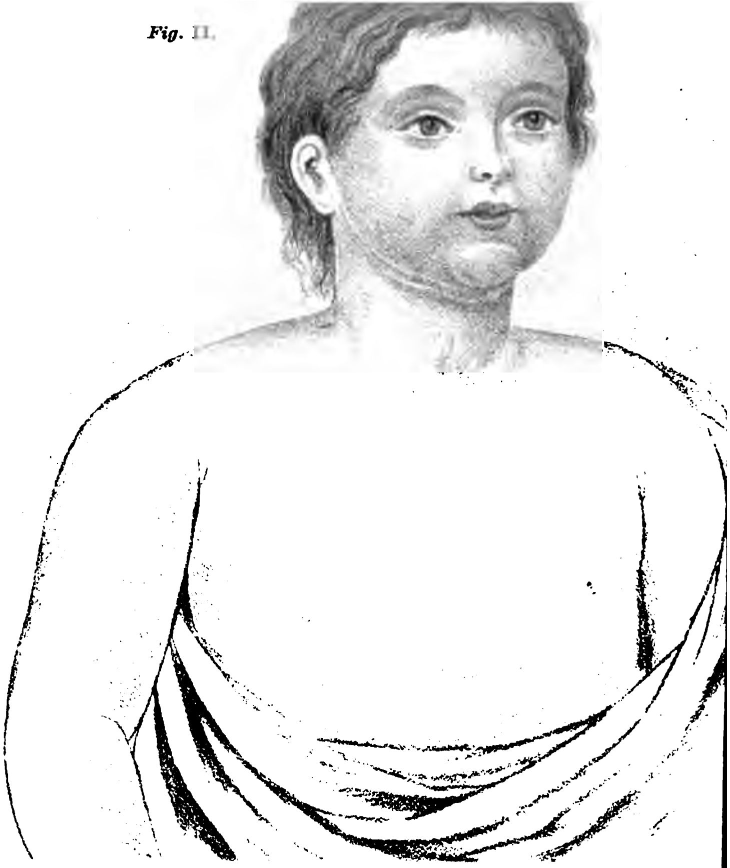


Fig. II.



MR WHEELER ON HYDROCELE OF THE NECK

Fig. III.

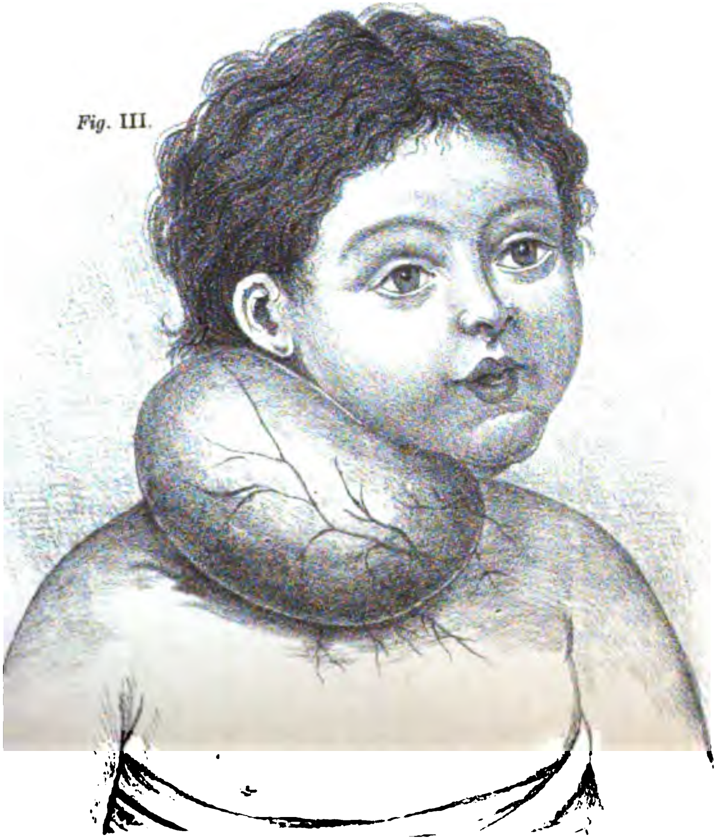
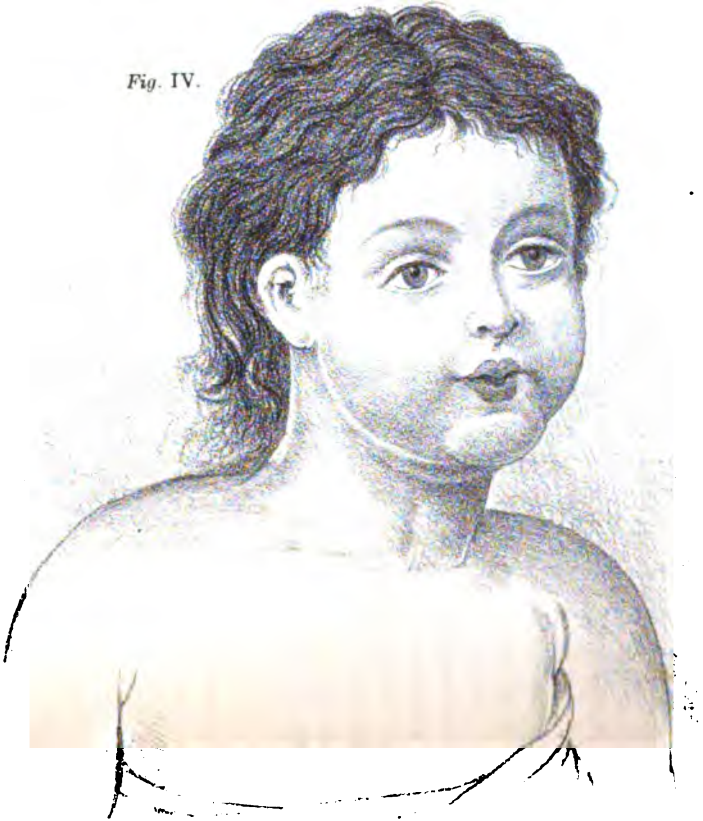


Fig. IV.



pied not only the posterior inferior triangle of the neck, but the posterior superior, and ran into the anterior superior triangle. There was no discoloration of the skin, as described to me, until quite recently, after the child had received a blow upon the shoulder, when pain and redness supervened. The cyst was evidently in a state of inflammation when I saw it, consequent upon the injury, and upon exploration quantities of pus, mixed with serous fluid, exuded. I opened this freely at the posterior inferior triangle of the neck, when pus and serous fluid poured out. I explored the cavity with a probe, which travelled back to the spine. The lining of the cyst appeared to be a serous one. It was washed out with perchloride of mercury solution, and as there was some hæmorrhage (though of small amount) the cavity of the cyst was plugged, and slight pressure exerted over the surface. In about five weeks after this the cyst contracted, and was followed by a complete cure. A drainage tube had been previously inserted.

Figs. III. and IV. represent the boy before and after operation.

Case IV.—The fourth case occurred in a healthy male child, two and a half years of age, who had a congenital cyst about the size of a turkey egg in the lower part of the right side of the neck. This tumour was not observed until nine months after birth; the advice given to the mother was "not to mind it, it would go away." As it was getting larger she consulted me. I tapped the cyst, when about two ounces of fluid escaped, clear in colour. On exploration of this cavity a probe passed back through a sinus of very considerable length. When the cyst refilled I again tapped it and injected it with a weak solution of chloride of zinc and subsequently with iodine. Suppuration and cure followed.

Figs. V. and VI. represent the child before and after operation.

Case V.—The fifth case was that of a male child five years old, suffering from a large hydrocele of the left lateral and anterior portion of the neck, extending back towards the scapular region, and traversed by large veins; occasionally he suffered from difficulty of breathing. I had operated upon this child's brother for double hare-lip, and his sister had a congenital fissure in the lobe of her right ear. My previous experience favoured the procedure by tapping and the introduction of setons. Chloroform having been administered by Dr. Harley, the contents of the cyst were evacuated through a canula; a large quantity of chocolate-coloured fluid was then withdrawn, and setons were subsequently introduced. The cyst cavity was syringed with chloride of zinc solution. No very active inflammation followed, but as the child was not making progress the setons were withdrawn. It was determined to excise the cyst, which course was advised by Mr. Butcher, whose opinion had been obtained. Consequently, eleven days after the procedure already described, the child was placed upon a suitable table, chloroform was administered by Dr. Harley—Mr. Butcher, the late Dr. Alfred Middleton, and Dr. Kelly, were present. An incision was made from and close to the thyroid cartilage upwards and backwards, terminating about an inch in front of the spine of the scapula, avoiding the external jugular vein, and as far as possible the other large veins before alluded to. The attachments of this cyst went back to the very spine itself; the hæmorrhage was alarming. It was quite impossible to remove the cyst in its entirety, and I had to ligature portions of the cyst and cut them away in front of the ligatures. The child's life was in the greatest jeopardy during the operation, and for several days after he had to be fed by a tube passed through his nose. Upon the fourth day after the operation the temperature was 106° F., the respirations were hurried and shallow, and his pulse was quick and feeble. Suffice it to say, after a prolonged and anxious watching the child recovered, and two years after the operation he was strong and well.

Figs. VII. and VIII. represent the child before and after operation.

In reviewing the literature upon this subject I have found it for the most part involved and indefinite. I have epitomised opinions taken from the following authors and journals, viz.:—

Von Ziemssen (Vol. IV., p. 287), under "Cystic Tumour of the Neck," says:—"Congenital struma (goître) and congenital hygroma colli cysticum come into consideration in this connection only in so far as in their severe and severest grades they exert compression upon the trachea." In the same volume congenital fistula of the neck, which owes its earliest scientific consideration to Dzondi, is alluded to; these fistulæ are divided into two groups—fistulæ pharyngis and fistulæ tracheæ—depending upon imperfect closure of the branchial clefts.

Agnew says:—"Cysts, as the name implies, contain a thin, serous, albuminous, watery fluid, sometimes as clear as spring water, at other times dark and often undergoing spontaneous coagulation. Their existence does not, however, depend exclusively upon some connection with a serous membrane. They occur in the neck, particularly where it is granular; in the ovary, thyroid gland, &c.; in bones, even in cartilage, and often in the subcutaneous tissue of the neck and other parts of the body.

"The favourite origin for the formation of these cysts is the neck, in which locality they are seen upon the clavicle; in the sub-

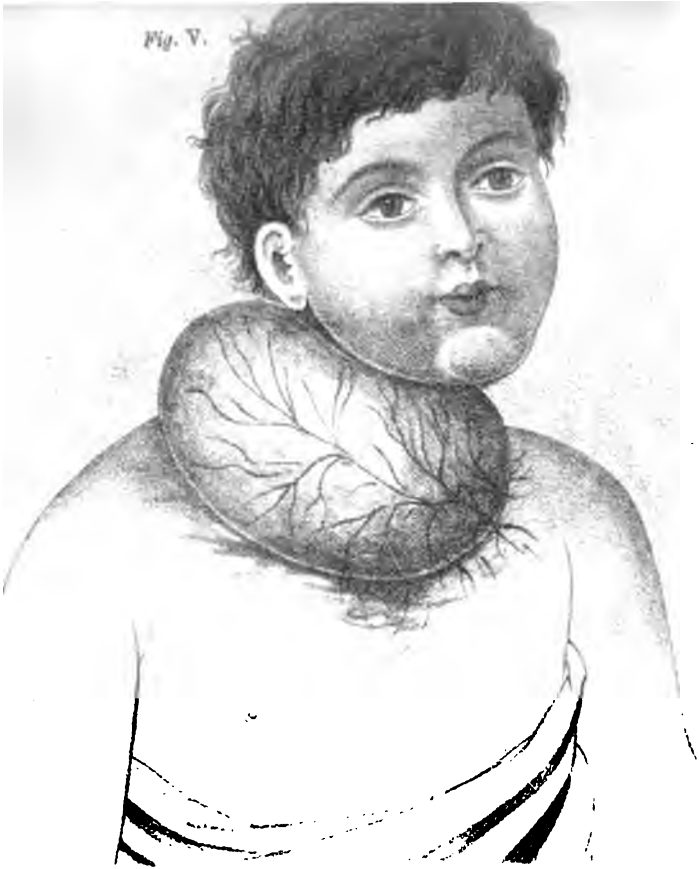


Fig. V.

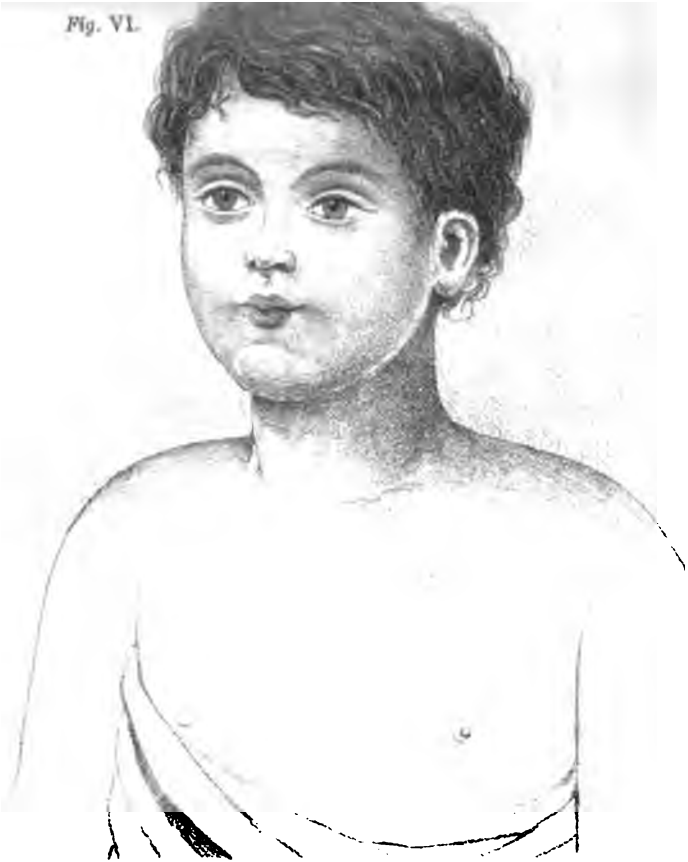


Fig. VI.

Mr WHEELER ON HYDROCELE OF THE NECK.

Fig. VII.

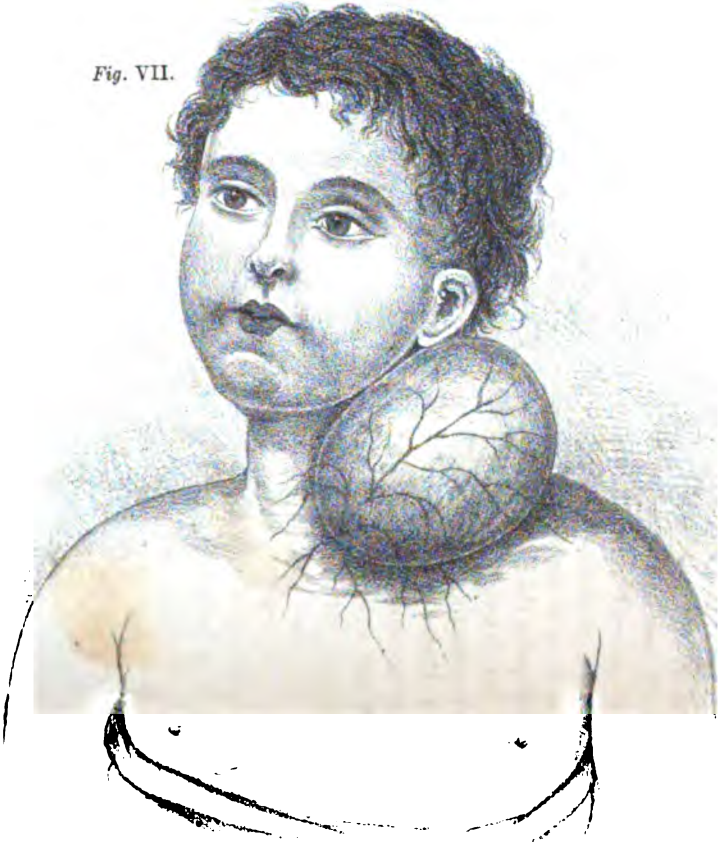
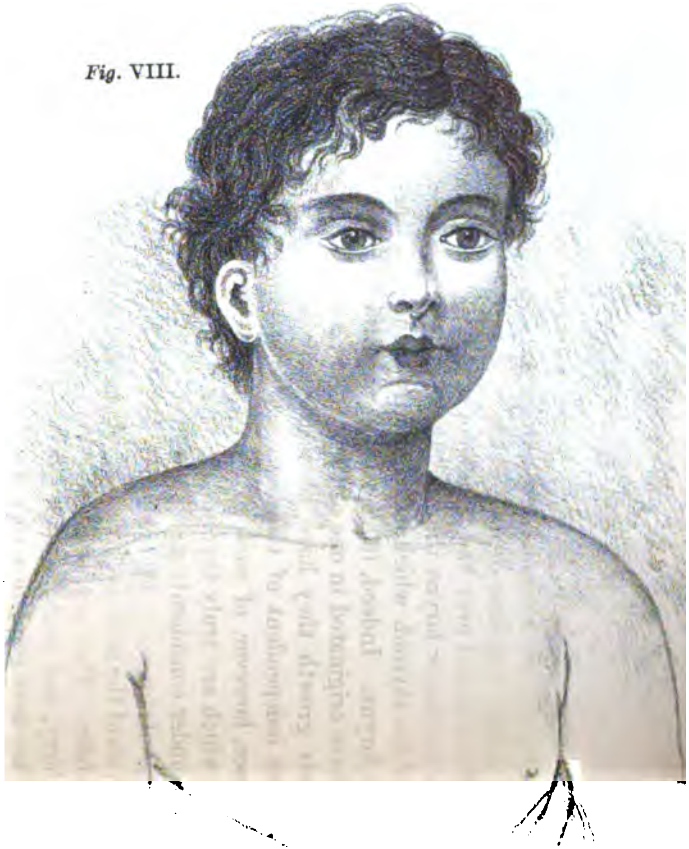


Fig. VIII.



clavian region beneath the jaw; in the space between the angle of the latter and the sterno-cleido-mastoid muscle. They are sometimes termed hygròma or hydroceles.

"When seated over the middle of the neck or along the side of the trachea or larynx they are likely to be confounded with the cyst of the thyroid, which is frequently found with the cartilage of the larynx. Indeed, it has been surmised by some writers that they have originated in one of these forms, and that in the course of their growth they have been gradually detached from and become independent of their original connections. There is no evidence, however, of such genesis—indeed, the contents of the cysts, which are truly thyroid, are. entirely unlike the contents of those under consideration. The former are like a mere serous or watery substance.

"Cysts of the neck are not confined to any age, occurring in infants and adults. They are more common between the ages of twenty and thirty, and perhaps more frequent in females than in males.

"They may grow to a very large size, as large as a child's head; are usually various in shape—they are semi-circular, oblong, or multilobular. The construction of strong bands, or of tense fascia, which lie in different directions over the sac of a cyst, will cause a single cyst to assume in time the appearance of one which is multilocular.

"The deep surface of cyst of the neck has a remarkable tendency to extend into the intermuscular spaces and other recesses of the region—for example, in the thyroid, under the trachea muscle, and between the scapula. The cells of such a cyst are generally quite thin and loosely connected with the surrounding parts, and its interior lined with a *pavement epithelium*. The contents are sometimes limp and watery."

Professor Muter relates four cases of this affection, and subjoins a short account of its symptoms and treatment.

The first was a congenital one, and consisted of numerous sacs, not having any inter-cómmunication, some of which reached a very large size, and, encircling the throat and chin, embarrassed respiration. When they did so to a great extent, one of them was punctured with relief, and that on two or three occasions. This child died from œdema of the glottis, probably brought on by compression of the sacs.

The three other cases were, as is usual with the bulk of recorded cases, situated on the left side. In one, in which a radical cure was declined, 44 ozs. of chocolate-coloured fluid was drawn off, and several months elapsed before reaccumulation. In another case a seton was introduced, which produced a radical cure. In the last case this was obtained by dissecting out the cyst.

The *Medical Press* of 1887, Vol. XCIV., says:—

"Congenital cysts of the neck are very frequently met with on the left side of the neck, and are quite superficial, being seated in the subcutaneous cellular tissue. They are usually single cysts; occasionally, however, they may be irregularly sub-divided. They usually present a rounded swelling, soft, and of elastic touch, easily movable, and not in any way implicating the skin or surrounding structure.

"In some instances they are firm and tense, somewhat resembling a solid growth. If very permanent, light may be transmitted through these cysts, but it is rarely they are sufficiently permanent for this. They cause no pain, and if left alone attain to a great size, when they create great inconvenience and deformity.

"These cysts have been known to be cured spontaneously either by bursting into the pharynx or into the skin.

"The compound congenital cysts are the most formidable, as from the deep connection they occupy between the muscles, and their close connection to the important parts, they might at any time create most distressing symptoms. These growths chiefly occur on the back of the neck, and may be, as their name indicates, made up of several separate masses, presenting a peculiar lobulated appearance of the cyst pushing itself up between the different intra-muscular septa.

"Although they are usually met with on the back of the neck, they might form either in the front or side. These cysts have attained to such a size before birth as to interfere with the child being born. These cysts are, however, much firmer than simple cysts. Their cells are thicker and tougher, and often contain calcareous matter. Their contents may be glandular, colloid, sarcoma, gangrenous. These cysts, like simple cysts, may burst, but rarely undergo spontaneous cure."

In the *Lancet* of 1858, the writer upon this subject, Professor Hewitt, relates two cases of this very rare affection. The first was in an infant a month old, with a cyst on the right side of the neck. It was the size of a rather large orange, was punctured by Mr. Hewitt, and several ounces of fluid drawn undiscoloured. The cyst was a unilocular one.

The other example was in a somewhat older child. It was treated by puncture, and a quantity of fluid drawn off; it remained collapsed for several days and then began to increase, became quite tense and solid. This in an infant becomes quite full and is about the size of an orange.

Such cases as these are somewhat dangerous, as inflammation and sloughing may be produced, and as they sometimes lie over the artery sloughing may be attended with hæmorrhage.

Then Mr. (afterwards Sir Prescott) Hewitt also relates a case which came under his notice some years before, of a young lady with a cyst in this situation. Mr. Keate dissected the tumour out but left a small bit of the cyst adhering to the subclavian artery. The wound healed up and the patient remained well for several years. When fourteen or fifteen years of age, a tumour occupied the same situation. She was taken to Edinburgh to a surgeon, who refused to meddle with it. Mr. Hewitt saw it a little later, and also refused to do anything with it. He thought, however, it might be obliterated, and Mr. Keate saw the case with him. The tumour was punctured and a quantity of rock water drawn off; it was evidently a remnant of the old cyst, which he treated by passing two threads through to act as setons. Four days after extensive suppuration of the whole cavity took place; she had shivering and irritative fever.

He opened the entire cyst right down to the collar bone, cutting through the mass of tumour. A good deal of pus was evacuated. She got up and went about, and a cough commenced.

One day on her return home after a ride, she became faint and vomited up a quantity of fœtid matter, which must have come either from the lung itself or was a separate deposit. However, Mr. Hewitt stated she has remained perfectly well and has quite recovered.

This is a good idea of what might sometimes be encountered in the treatment of this uncommon affection.

In the *Lancet*, 1880, two cases of cyst hygroma are described in which the growth was of considerable size, extending from the neck to the axillary and subscapular regions, and both cured by the same process. The first was of a child, about three years old, which came under care in September, 1878. The tumour reached from the elbow to the axilla and across the thorax as far as the sternum. It grew slightly from birth to the age of one and a half years. Four weeks before admission to the hospital a blow had been inflicted on the swelling, and when admitted it was acutely inflamed, commenced fluctuating, with a firm shining surface. In three weeks the local inflammation had subsided, and the cyst had become contracted, so that when the child left the hospital five months later, only a sort of fibrous thickening remained.

The second case was a female child, aged two and a half years, admitted in August, 1878, with a large hygroma extending to the subscapular region. It was composed of large veins in the neck and muscle; setons were introduced, and on the third day the cyst had become inflamed.

The largest sample of this kind was the case of a child at the Hospital for Sick Children, where the hygroma was larger than the child itself. It extended from the chin to the pubes and down the arm. The child died in eight or nine years from pneumonia and inflammation of the hygroma.

The *British and Foreign Medico-Chirurgical Review*, 1873, in a reference to serous cysts of the neck, by Dr. Burow and Dr. A. Trendelenburg, represents Dr. Burow stating that these cystic tumours of the neck present themselves in the greatest varieties, but the knowledge of them forty years ago was very imperfect, as they were not distinguished if they presented the common character of a sac filled with firm feeling substance. Brunninghaussen, Maunoir, Wernher, Fleury, Marchessaux, and Gurlt were the first who threw some light on the subject. The following varieties of cysts in the neck are distinguished—Ranual, cystic, goître, hygroma, cystic-colli-congenitum (according to Wernher), hygroma of bursæ mucosæ, hydrocelecolli, atheroma, dermoid cysts, echinococcus cysts outside the thyroid gland, and, we may add, echinococcus cysts in the cellular tissue of the neck, and others.

Of these hydroceles Gurlt could collect only three cases; these occurred in the practices of Cloquet, Dixon, and Langenbeck. There is also one case of this kind published in the *Dublin Journal*, September, 1834, and one by Stanley, in the *Medical Times and Gazette*, 1852. So up to 1873, according to Gurlt, only four reliable cases of hydrocele had been collected.

In the *Lancet* of 1866 a case is recorded of a cystic tumour of the neck, which opened into the pharynx, and displaced the trachea and larynx, very nearly smothering the patient. The description of this cyst is too voluminous to be recorded here, and

I cannot find any evidence to correctly establish it as a hydrocele of the neck.

The *British and Foreign Medico-Chirurgical Review*, 1852, refers to a dissection of hydrocele of the neck with observations on the presumed seat of the affection, with a report on the paper by M. Le Bert. It commences by saying that the pathological anatomy of these tumours has remained obscure. The writer found the cyst in connection with the lymphatic gland, and M. Le Bert believes that the lymphatic gland can be transformed into a cyst. This may, perhaps, have been one of the reasons that led to the belief that hydroceles of the neck were caused by dilatation of the lymphatics.

In the *Lancet*, 1878, are recorded three cases of dermoid cyst of the neck occurring along the branchial fissure, and Verneuil has advanced the theory that dermoid cysts of the face and neck always occur along the line of the branchial or other embryonic fissure, and are connected with them. The situation of these dermoid cysts—one on the inner angle of the orbit, and the two others on the outer angle of the orbit—corroborates this view.

In a discussion which followed upon this paper many were disinclined to accept Verneuil's theory without additional evidence.

The *Lancet*, Vol. II., 1872, page 667, in an article relating a case of congenital cystic tumour of the neck successfully extirpated, says—"Cysts, such as the following, are sufficiently rare to be looked upon as pathological curiosities, and (continuing) these growths are generally considered to be an hypertrophy or abnormal development of the ordinary cellular tissues. They consist sometimes of one or more cysts filled with fluid—when they are frequently styled hygroma."

From the foregoing abbreviated and varied views upon hydroceles of the neck it can easily be gathered that no very universally correct idea had been formed about them. Dzondi, Verneuil, Gurlt, Maunoir were amongst the earliest to shed scientific light upon the subject, to pave the way by their researches to the true explanation of their origin. As early as 1789 Hunzowshi found congenital fistulous tracks in the neck; very similar were described by Dzondi in 1829, and subsequently by Ascherson. Heusinger (Virchow's Archiv., Bd. XXIX., 358), in 1864, describes the connection between congenital apertures in the neck and branchial clefts. Any want of closure of these clefts would cause fistulous openings, either complete or incomplete, or both orifices may become closed, and not the space between. It is in this intervening enclosed space I believe that hydrocele of the neck occurs most frequently, at first always beneath the deep cervical fascia, and can be recognised from birth. Sometimes, as before stated, they are so large as to interfere with the delivery of the child, extending into the axilla and mediastinum.

Notwithstanding that Dzondi and others had described the cause of hydroceles of the neck, his views do not appear to have been known to subsequent writers upon the subject, or they were not received.

Hydroceles may be unilateral or bilateral, multilocular or unilocular; springing as they do from beneath the deep cervical fascia, induced some writers to assert that they were somewhat similar to the air sacs of the howling monkeys. A fact worthy of note is the tendency these hydroceles have to disappear—they are prone to inflame and burst—this may in a measure account for their paucity.

I have not seen bilateral hydroceles. Burow has observed four cases, two upon the left, and two upon the right side of the neck. Gurlt, as before mentioned, could only collect three hydroceles of the neck.

Hyoid bursal tumour has been mistaken for hydrocele of the neck. The diagnosis is not difficult; the contents of the former are ropy and viscid, the latter clear as a rule, or chocolate colour. The former occurs in the median line.

The bulk of these hyoid bursal and ante-thyroid hygromata vary in size from a hen's egg to an orange, are invariably in the median line, may disappear and fill again. The only tumour involving the supra-thyroid bursa is reported by Wagner.

Ashurst, in writing of hygroma, says the term is not only applied to hyper-secretion, but also to mild sub-acute or chronic bursitis, and should, he said, be restricted to cases of hyper-secretion into bursæ.

Burow, following in the same line, states clearly to what the term hygroma should be applied, and to what hydrocele, and says:—

"Hygromata occur at the central line of the neck, as a degeneration of the ante-thyroid, thyro-hyoid, or supra-hyoid bursæ. The cure is often affected by puncturing, or injection, or drainage by removal of the anterior wall, followed by cauterisation of the anterior of the cyst. Sometimes they break spontaneously, leaving fistulous canals difficult to cure; whereas, hydrocele of the neck is a congenital cystic tumour which occurs on one side of the neck, between the angle of the lower jaw and the mastoid process, on the one hand; and the larynx and the sterno-mastoid on the other."

Much confusion would have been avoided had writers used the terms definitely, as recommended above.

The hygroma cystic-colli-congenitum first described by Wernher, is characterised by tumefaction in the lateral region of the neck, greatly varying in size. A bilateral tumour may cover the whole neck, raise the tongue as in ranula, or it may hang down towards the chest.

When hydrocecle cysts occur upon the back of the neck, it has been suggested that they may be mistaken for spina bifida or encephalocele.

These hydroceles may sometimes attain to so large a size as to interfere with deglutition and respiration. Their chief seat, as has been described by Monnoir and Philips, is the posterior inferior triangle of the neck, where they form a somewhat bladder-like tumour, filled with various kinds of fluid of yellow or chocolate colour, of serous character, but mostly representing rock water, as has been pointed out by Mr. Hewitt.—*Lancet*, 1858, p. 605.

It is worthy of notice that occasionally these cysts are so peculiarly vascular that they have been looked upon as degenerative nævi. Birkett has recorded cases in which he removed nævoid axillary cysts.

As regards treatment, a violent reaction sometimes takes place after puncturing, and subsequent stimulating injections. Total extirpation has resulted very unfavourably (Bardelben Schuh). Burow has, nevertheless, among his four cases *twice* performed this operation with the best success.

Speaking of treatment, Dr. Muter observes that the operation of excision on a cyst should be confined to cases where the tumour is small, circumscribed, and superficial. Repeated tappings (care having been taken to empty the sac of all fluid) may be employed as a palliative in congenital hydrocele when severer measures might be undesirable, and might sometimes effect a radical cure by keeping the sac empty. In old cases it might relieve cogent symptoms.

The chance of a radical cure is increased by scratching the interior of the sac with a trocar.

The shortest plan of cleaning one of these tumours, if comparatively superficial, is from incision of the sac following up by moderate compression. Iodine has also been used to the inner surface of the sac to convert it into a granulating one.

The seton, perhaps, would be the best treatment where extirpation, repeated tappings, or incision are inappropriate.—*British Medico-Chirurgical Review.*

A writer in the same review states that extirpation by dissecting out the contents is often attended with great difficulty and danger, and is only justifiable when all other measures have failed.

For the treatment of cases similar to those I have recorded, I should advise tappings, setons, injections, scraping the interior of the cyst; electrolysis might be tried, excision if the congenital cyst is small, but to be undertaken only as a *dernier ressort* if large.

ART. XVIII.—*Medical Education as it is and as it should be.*[a]

By J. S. M'ARDLE, F.R.C.S.I.; Surgeon and Lecturer on Surgery, St. Vincent's Hospital; Assistant Professor of Operative Surgery, Catholic University Medical School.

INTRODUCTION.

ON behalf of the Sisters of Charity and in the name of my colleagues I bid you welcome to St. Vincent's, and at the same time I ask for myself your kind forbearance.

Heretofore, in most Addresses dealing with the subject of medical education, the student was warned of the pitfalls, which are fairly plentiful, in his path. To-day I would reverse the picture and take for my text, "The necessity for circumspection on the part of those who regulate his course, and ultimately send him forth for better or for worse."

My object in so doing is to show, if possible, the causes of the decline of the Irish Medical Schools.

Some of you may ask with Matilda Blind, "Is it well or is it ill done, to make the world our Father Confessor?" I shall endeavour to confess our faults, in the hope that their rectification may check the exodus of our students, which we all know is occurring. I desire, before entering into the subject at all, to safeguard myself by saying that no words of mine must be taken as reflecting on any school or any individual. Where sentences occur which from their nature may seem personal, remember that I am attacking systems not units.

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[a] An Address introductory to the Session 1894–5, delivered in St. Vincent's Hospital.

Those who have not gone carefully into the subject can hardly realise the falling-off in the numbers of Irish students, and fewer still will be prepared for the mention of the remarkable increase in the Scotch and English schools. In Ireland, in 1872, 352 students were registered, while in 1892 the numbers had fallen to 175.

Contrast this with the increase in Scotland in the same period from 324 to 578, and in England from 676 to 1,007; and we find a condition of things not easily accounted for. In seeking the causes of decline, I would divide them into "general," or those over which we have no control, and "local," which we can modify.

Amongst the former may be mentioned:—

(a.) The decline of prosperity of this country.
(b) The employment of so many educated men in the Civil Service Departments.
(c) The extension of time of study, and
(d) The abolition of night lectures.

All these things certainly influenced the numbers attending our schools in some degree; but most of these influences must have been at work in England and Scotland as well as in Ireland. Of course agricultural depression tells more on a country like Ireland than on either of the others. The late Dr. Ledwich used to say, "The prices at Ballinasloe exert more influence over the number of students than any other event of the year." We have gone beyond the Ballinasloe stage now, and, indeed, all the causes noted in this category are quite beyond the reach of our influence as medical men.

Not so, however, with the local causes, which may be summed up as follows:—

(a) Frequent change of regulations.
(b) Constant addition of new subjects.
(c) Uncertainty of examinations.

REGULATIONS.

As periods of unrest interfere with the advancement of states and peoples, so with us the constant changes of the curriculum, the frequent unnecessary addition of subjects, produces a condition of instability which must deter students from joining our schools, or, what is more frequently brought home to us, will force men to seek elsewhere that settled and regulated procedure which is denied them at home.

If change and turmoil retard the progress of the arts, which are only in a degree dependent on science, what must be the influence of perpetual change on the study of a profession which we all know rests on a basis in which art and science so intimately combine that separation means destruction? Let us look up the history of our licensing bodies here, and we find that hardly a year passes without some material change being made in the regulations. Students resent this, teachers resent it still more, and after the obnoxious rule has deranged as far as possible the quiescence of the classes, it is allowed to drop into abeyance or it is expunged. These efforts at medical statesmanship would be amusing were they not so disastrous. The regulations which allow men—nay, more, encourage them—to look upon hospital work as so much time lost, cannot be conducive to their well-being. A distinguished physician of St. Bartholomew's Hospital once said: "When you wish to teach a child to read you do not begin with the history of letters; where and by whom letters were first invented, and where and by whom the printing press; but you leap over a century or two without remorse and put a dainty alphabet into his hand." If you would teach your students to read the book of life, where do you find the alphabet? With one breath you answer, "In the beds of our hospitals," and yet you withhold this book from those whose whole future depends on the accurate reading thereof.

While at least two searching examinations in anatomy are held, and the student must give proof of personal acquaintance of the subject requiring long and persistent work to acquire, they learn early in their course that it is not essential for them to pay any attention to hospital work during the first few years of study. The regulations of the colleges and universities, especially the latter, favoured this view, as no examination worth the name has ever been held until the completion of the course of study to test the proficiency of students in these branches of the profession which are of immediate moment to the public.

I am glad that some little is being done to remedy in a slight degree this defect in our scheme of education, and that the light of truth is at last dawning on those who legislate for us. When will they fully realise that there is more valuable and thoroughly authenticated information now available than any of us can acquire? The most perfect book is open to us in the wards of our hospitals, and yet whither does our present system of tuition lead our students?—Away, far away from the bedside; away into those dingy corners obscured by the cobwebs of theory; away where the whitewash brush of science cannot penetrate—there to become possessed of notions whose baneful influence even time cannot efface.

ADDITION OF SUBJECTS.

I notice with concern that still another effort is being made to embarrass students by inflicting new courses on them. Where will this end? Should it continue, our students will be the most over-lectured and under-educated professional body in the world. What can be the outcome of this multiplication of subjects but that our students must see with the eyes of others, hear with their ears, and cogitate with their brains, and this to such an extent they will know little or nothing as the outcome of personal observation.

In reference to this, Huxley, twenty years ago, rightly said:—"I entertain a very strong conviction that anyone who adds to medical education one iota or tittle beyond what is absolutely necessary is guilty of a very grave offence—the subjects with which you have to deal being so difficult, their extent so enormous, and the time at your disposal so limited, I could not feel my conscience easy if I did not raise a protest against employing your energies upon the acquisition of any knowledge which may not be absolutely needed in your future career."

Unfortunately the warning has to be repeated; and I read in a leading article of the *Lancet* the following sentence, with which I am thoroughly in accord:—"It is useless to ignore the fact that the ever-accumulating number of subjects to be studied and examinations to be passed are a constant temptation to the inferior student to scamp and rush his work, and that they strain the health and spirit even of the best students." While in the *Medical Press* of October 3rd, 1894, the following vigorous protest appears:—"As examinations go at present every candidate for the dignity of general practitioner must be what has been called a 'general specialist.' He must prove himself a chemist as advanced in knowledge as if he were going to make his living by that science, he must show erudition in physiology which would fit him for a professorship of that subject. He must prove that he is fit to set up as a specialist in ophthalmology, and he, according to the latest craze of the General Medical Council, must possess as much knowledge of psychology as would justify him in taking charge of a lunatic asylum. He must, in addition, be as well up in pharmacy as any one who is to keep a compounder's shop, and he must be a hygienist ready to be trusted with a medical officership of health. In addition to an acute knowledge of all these specialties, he must possess a moderate smattering and know something of the more abstruse branches of surgery and medicine, but as regards the everyday work of the general practitioner, he may, for all the General Medical Council knows, enter into practice in a state of dangerous ignorance."

UNCERTAINTY OF EXAMINATIONS.

Ever since I was engaged in private teaching I take great pleasure in hearing the questions put to students in the oral examinations of the different colleges, and at times I am astonished by the character of the queries. I often wonder is it the object of the examiner to find out something wherewith to astonish the student. I have more than once met men thoroughly sound in their knowledge, and most capable as practitioners, rejected because they did not know Eiseldorf's dislocation, or because they could not describe the affection particularly noted by Petersen. Such conundrums may sharpen the wits of literary jugglers, but they have no place in fair examination; and until those who open the sacred portals of the profession learn to place a proper value on the information which is the outcome of personal observation, men will leave our schools totally unfitted to grapple single-handed with the more serious cases they encounter in every class of practice. On the other hand, puerile questions without number are asked, and the clinical examinations are very imperfect. If men went up for examination in Anatomy with such imperfect knowledge as they display in Surgery, not one in twenty would pass now. Why? Any teacher of Surgery can answer. Students are tied down to facts in Anatomy; fad and fancies have far too much place in the systems of Surgery now recognised. Thoroughgoing work will not be done in our hospitals by the great body of students until you teach them that their knowledge of Surgery must be at least as real as that of Anatomy. Once make this understood and you will have done much towards making the present generation of students thoroughgoing practitioners, and your colleges worthy of the support they seek.

EXPERIMENTAL RESEARCH.

Half a century ago Irish medical degrees held a position very different from that which they do now; then the stamp of the Irish college or university carried with it a weight disproportioned entirely to the opportunities your predecessors had of acquiring a knowledge of our profession, but their keen observation, their quickness of perception, their great energy, caused Nature to yield up many secrets their genius has left to us as a great heritage. The very atmosphere of your schools is laden with the brilliant and unwritten ideas of generations of mighty minds. What have we done to transform this leasehold from our predecessors into a grant in perpetuity for those who come after us? What have we done to conserve this great property for the common weal?

In the early part of this century the leaders of the profession here held a long lead in the race for medical distinction. A learned French physician, writing of Graves, said: "Graves is, in my acceptation of the term, a perfect clinical teacher, an attentive observer, a profound philosopher, an ingenious artist, an able therapeutist. There is not a day that I do not in my practice employ some of the modes of treatment which Graves excels in describing with the minuteness of the true practitioner, and not a day that I do not from the bottom of my heart thank the Dublin physician for the information he has given me." When Trousseau, himself one of the greatest teachers in Europe, wrote the foregoing, the Dublin school had many ornaments like the one of whom he speaks. To-day it is not devoid of highly gifted observers and brilliant teachers. Far be it from me to glorify the dead at the expense of the living, but we do not hold now the position we should. Unfortunately things are reversed; we now take our Physic from France, our Surgery from Germany, and the rest whence we may list.

This leads me to deal with a cause not of decline of our schools, but of the chief cause of their inability to keep in line with the teaching bodies of the Continent. Before carrying out a new operation for some grave intestinal lesion, how many men in this country work out the details of that procedure on living animals? No doubt we do not put our conceptions into practice without some preliminary trial, but this is on the cadaver. We know nothing of how our appliances or methods will affect living tissue. Anyone who has had experience of abdominal surgery well knows that no two things could be more unlike than the contractile, highly vascular, and exceedingly delicate intestine of the living, and the flaccid, inert, and bloodless tube found after death. Experiments on the internal organs after death are worse than useless since all these conditions which render such operations difficult in the living are totally absent. We read or hear of a new operation. How are we to determine its value? Former experience may guide us, but in the absence of that necessary equivalent what provision have we made to put these procedures to the test? None whatever! Some time ago I had the privilege and pleasure of witnessing the application of a most brilliant surgical conception, the outcome of the genius of an Irish American, Mr. Murphy, of Chicago. My colleagues and those visitors and students who had the good fortune to see him demonstrate his rapid method for dealing with wounds and obstructions of the bowel, and disease of the gall bladder, will bear me out when I say that nothing could be more perfect than the display we witnessed. With this little appliance the operator brought different sections of the intestine together in one-tenth of the time I had occupied in carrying out the same process by other methods. Hundreds of successful cases by the most distinguished surgeons in America attest the value of this procedure, and when I asked Professor Murphy how he worked out this, which has gained him a world-wide reputation, and which has saved and will save many a valuable life, his answer was simple, but instructive. "All my experiments," he said, "were conducted on dogs; the first application of this method on the human subject was successful."

Now, I ask how can we hold our own with those who, from their studentship, assist and ultimately carry out themselves these methods of research, who watch the influence of every suture material and every surgical appliance in living tissue, and who know therefore of their own knowledge why to discard one as useless or dangerous, and why to retain another for its ease of application, its innocuous character, or its perfection of form.

Those who oppose this method of research have little sense of the ridiculous, otherwise they would see that there is infinitely less suffering occasioned in the carefully-conducted experiments referred to than they themselves inflict for their amusement. A wounded bird left the prey for vermin; a startled hare running for dear life; a cunning fox at last brought to bay—all of these suffer terribly and for little good.

And, forsooth, we must not after the most merciful anæsthesia, we must not, when the animal is profoundly unconscious, do to it a thousand times less than these tender and delicately-constituted beings do every day in cold blood. They do not object to pig-sticking or pole-axing; but with the cussedness of those whose minds are warped they must needs interfere with our progress—they must barricade the gate to the garden of knowledge.

When will this great nation aid our examining and teaching bodies to do for its children what every petty Continental State does for its subjects? All sorts of education are lavishly paid for; schemes which benefit little or not at all are generously supported, while these invaluable educational methods are discountenanced when they should be fostered.

Instead of continuing the cramming system of the Intermediate Scheme in our schools, let us then make our examinations practical, let us insist that our students should know of their own knowledge the value of those things which are hereafter (in their hands) to alleviate human suffering, to prolong human life. Then shall we reap the reward in having large and enthusiastic classes, then, and not till then, will those brilliant ornaments of the Irish profession attain the worthy object of their ambition.

With great regret I express the feeling I have—that until our schools are equipped with all the necessary appliances for experimental research, we must be satisfied to follow in the wake of Continental teachers.

THE LITERATURE OF MEDICINE.

The next point I would touch upon is one of more than passing interest—it is the Literature of Medicine. Latham, many years ago, said "the practice of Physic is jostled by quacks on the one hand, and by science on the other." Why should this be so? Simply because we have not yet arrived at a stage when dogmatic teaching is possible. The conservative character of our profession is such that old methods are not readily discarded, although found very inefficient, and so our books are crowded with details of methods of treatment long since thrown aside by thoughtful and thorough-going workers in every department of medicine and surgery. Now I hold that if we could eliminate the material of questionable and of dangerous character from our text books, our students would be made proof against the buffets of quackery and science;

would become the handmaid of art in placing our practice on a firm foundation. What perspective is to the painter the science of Surgery is to the great operator. In no profession is the union of Science and Art so essential—in none is the absence of this combination so disastrous. A picture in which the most perfect figures are drawn out of proportion to their surroundings does not half represent the defects of a system of surgery in which Art is developed at the expense of Science.

CONCLUSION.

And now may I claim your forgiveness for so detaining you, and make my obligation still deeper by asking you to grant me a few moments to say a word or two to those beginners whom we initiate to-day.

To you, my young friends, I would say enter on the pursuit of knowledge in the spirit of the true artist; enter on it not with that boastful energy which wrests nothing from nature, but with the "incorruptible and earnest pride which no applause, no reprobation, can blind to its shortcomings or beguile of its hopes." Do not imagine that when I speak of reducing the number of compulsory subjects I in any way seek to depreciate the value of other branches of education. On the contrary, if it be true, as Cicero says, that the finished orator must be a man of universal learning, how much more true must it be when the object of study is the well-being of that entity for whose delectation the arts and sciences are studied, for whose gratification or instruction frescoes are painted, monuments reared, and operas sung. To you, more than to any other class of students, I would commend the lines of Horace:—

> "I see not what without true genius study,
> Nor genius without study can effect.
> Each needs each; both, when hand in hand, will thrive."

Let me remind you that the calling you have chosen is a noble one, noble in itself apart from the individuals who adorn it and who would ennoble any profession. It is noble in its inception, noble in its object, thrice noble in its results. In the hour of tribulation you hold a place in the mind and frequently in the heart of the sufferer that words cannot pourtray. Always remember that however exalted or humble may be your position, however remote from civilisation your practice, your work is the same. 'Tis the same flesh the ills of which you are called upon to rectify; 'tis the same ruddy tide which courses through the arteries of the blackened son of the desert, the bronzed Indian, and the blue-blooded stock of the old country. The lowliest cot in this land of ours contains the selfsame natures as the greatest mansions, and it is my hope that you may bring health and happiness to both, and glory to this, your Alma Mater.

CHLORALOSE.

In the *Practitioner* for July, 1894, Mr. Charles Flemming, M.R.C.S. Eng., of Freshford, near Bath, reports favourably upon this new drug. Chloralose ($C_8H_{11}ClO_6$) is formed by heating a mixture of glucose and anhydrous chloral. It occurs in fine white crystals, slightly soluble in cold water (1 in 300), but easily soluble in hot water. They are slightly bitter to the taste. Given to a healthy man, chloralose soon produces an irresistible desire to sleep. The sleep produced is calm and refreshing, but the subject can be easily awakened, quickly returning to sleep again. During the sleep there is no dreaming, and on waking there is no unpleasant sensation. There is no alteration in arterial pressure, even after large doses. There is no loss of reflexes; experimenters say they are exaggerated, and that this is due to direct excitability of corresponding centres and not to depression of inhibitory centres. Temperature is lowered from one-fifth to three-quarters of a degree. The excretion of urea and chlorides is said to be increased. Chloralose may be given in doses of from two to six grains in milk or cachets. Twelve to twenty grains may be given, but these would be heroic doses. It produces sleep in from twenty to sixty minutes, according to the idiosyncrasy of the patient and the size of the dose, sleep lasting from four to ten hours or sometimes more. When long sléep is wanted it is better to divide the dose. We may expect benefit from chloralose in all forms of functional sleeplessness, in the insomnia of psychical excitement, of hysteria, of neurasthenia and overwork, of functional cardiac irritability, and in attacks of epilepsy and somnambulism. Secondarily, its use may enable us to separate objective from subjective pain, and so help, for instance, in the differential diagnosis of some forms of hysteria. Chloralose will avail nothing in the insomnia of alcoholic excitement, multiple neuritis, or cerebral hæmorrhage, or the sleeplessness due to any painful organic lesions or peripheral irritation. In the insomnia of lunatics, where there is depression, it is said to be useful if given in large doses. In the early stages of Bright's disease, chloral hydrate, owing to its effect on the blood-pressure, is probably more efficient.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Hydatid Disease. Vol. II. By the late JOHN DAVIES THOMAS, M.D. Lond., F.R.C.S. Eng.; formerly Physician to the Adelaide Hospital, and Joint Lecturer on Medicine in the University of Adelaide. A Collection of Papers on Hydatid Disease, edited and arranged by A. A. LENDON, M.D., Physician to the Adelaide Hospital, &c. Sydney: L. Bruck. London: Baillière, Tindall & Cox. 1894. Pp. 166.

WE must congratulate the profession at large on the appearance of this work on hydatid disease. We cannot, alas! congratulate its author, for he passed away from the scene of his labours before the work was published. This work, however, is an enduring monument of his research and experience. It forms the most important publication on the subject with which we are acquainted; every page of it bears that impress of carefulness and thoroughness which carries to the mind of the reader the conviction that its author was a master of his subject.

The work is divided into five parts. The first treats of the disease as affecting the abdominal organs; in the second affections of the thoracic viscera are described. The lungs seem to be peculiarly often affected in Australia. Dr. Thomas suggests (quoting Dr. Bird of Melbourne) that this may be due to the ova being carried about by the wind, mixed with the dust of the streets, and so being inhaled into the lungs. The next section—that on the disease as affecting the brain—is one of the most important in the book; it occupies 40 pages. As well as giving a very complete account of the disease, it contains notes of 97 cases, which the author has collected from British and Foreign literature. The fourth section treats of the disease in the bones and joints, and the last section of the operative treatment of hydatid disease.

With regard to treatment, Dr. Thomas shows by statistics that the best results are obtained by making a free incision and stitching the sac to the skin, careful antisepsis being maintained. This method applies not only to abdominal hydatids, but also to those in the lungs and pleuræ; in the latter cases portions of several ribs must, of course, be resected.

For this work we have nothing but the highest praise—in thoroughness it equals, if it does not surpass, any work we have met with for a considerable time. The number of books and journals, both British, Colonial, and Foreign, referred to is immense. One feature which gives the work special importance in a country such as Ireland, where hydatid disease is rare, is the attention paid to physical signs, symptoms, and diagnosis; thus, in the account of hydatids in the lung we find the following subjects treated of at length:—Physical signs of the unruptured cyst; physical signs of the ruptured cyst, including peculiarities of the percussion note, and of auscultation signs, and effects of change of posture. Differential diagnosis—(1) of the unruptured cyst from phthisis and from pleural effusion; (2) of the ruptured cyst from phthisical cavities, from gangrene of the lung, from mediastinal tumour, and from carcinoma.

Every medical man who desires to make himself acquainted with the subject of hydatid disease should procure a copy of Dr. Thomas' work.

The Treatment of Chronic Diseases of the Heart by Baths and Exercises, according to the Method of the Drs. Schott. By W. BEZLY THORNE, M.D., M.R.C.P. London: J. & A. Churchill. 1894. Pp. 24.

IT has often been stated that exercise was beneficial in certain cases of heart disease. On the other hand, many diseased hearts have been injured by undue exertion. The difficulty is properly to regulate the exertion, so that the patient may run no risk of injuring himself. Dr. Thorne's paper describes the method devised by the brothers Schott, wherein carefully regulated exercise is combined with the use of baths, and the value of the treatment is proved by the records of a number of cases.

The baths most often employed are those of Nauheim, which contain about 1½ per cent. of chloride of sodium, and of chloride of calcium, with other salts, and a considerable quantity of carbonic acid gas. These baths can be artificially prepared. Their effect is—cutaneous stimulation, a sense of refreshment, and an eventual gain in weight. The pulse is reduced in frequency, and visceral congestion is lessened.

The exercises (called (*Widerstands-gymnastik*) consist of various motions, which are resisted by an attendant with a degree of force not quite enough to stop them: palpitation and breathlessness are avoided. Their effects on the diseased heart are little short of marvellous. "I have had the opportunity of observing in one hour a shrinking of the area of dulness, as measured obliquely a little below the nipple line, of four and even six centimetres, and of two and three centimetres in the vertical line." A free flow of urine occurs, and an enlarged liver is found to lessen in size. As a result of these baths and exercise Dr. Thorne states that patients who otherwise would be all their lives hopeless invalids are enabled to return to the cares and labours of an active life.

Seven illustrative cases are recorded, and diagrams are employed to show the great diminution of the heart dulness.

Dr. Thorne's little book will well repay perusal.

Tumours, Innocent and Malignant: their Clinical Features and Appropriate Treatment. By J. Bland Sutton, Assistant-Surgeon to the Middlesex Hospital, London. With 250 Engravings and nine Plates. London: Cassell & Co., Limited. 1893. 8vo. Pp. 511.

In this work Mr. Sutton has collected together and largely augmented many of his scattered lectures and essays. We find here traces of the Erasmus Wilson lectures, of his monograph on Dermoids, and of most of his studies in comparative pathology, the result being a book that, considered from its own standpoint, is absolutely unique in surgical literature. The volume is admirably got up—paper, type and binding being of the excellent quality generally associated with the publications of this firm; while the profusion of illustration is one of its most admirable and most striking features. This pictorial wealth cannot fail to be of wide service, as in many cases the clinical and naked-eye features of the neoplasms are supplemented and completed by reproductions of the details of their microscopic structure. But while we pay the tribute of highest admiration to the woodcuts that adorn the volume, we cannot extend the meed of praise to the so-called plates, the majority of which are of the crudest possible description, and appear to be only inserted because the blocks were already in existence.

In the preface Mr. Sutton tells us that the work is the result of eight years' study of the subject and accumulation of materials; and to clear the ground and "define the boundaries" of the field of investigation he "determined to eliminate all those conditions often classed with tumours which have been demonstrated to depend on micro-organisms." This was a thoroughly wise beginning in the light of present knowledge; for though the near future may include such pronounced tumours as the forms of sarcoma and carcinoma in the rejected category, still, for the present, the evidence of their infective nature is sadly deficient, and we must remain content a little longer to regard them as abnormalities of connective tissue and epithelial growth. With another paragraph in the preface we most cordially agree.—"In describing cancer," writes Mr. Sutton, "a wide departure is made from the beaten track. The terms scirrhus, colloid, and medullary or encephaloid, have dominated the minds of surgeons and hindered progress long enough. The term cancer is employed in a sense equivalent to malignant adenoma, the species being determined by the gland in which the cancer arises." This is a decided move in the right direction.

A short introduction deals with the classification of tumours, and these, in the present state of our knowledge, may be arranged in four groups:—

"I. Connective tissue tumours;
II. Epithelial tumours;
III. Dermoids;
IV. Cysts.

"Each group contains several genera; each genus has one or more species; of each species there may be one or more varieties." It is on these lines that the book is written.

Very interesting chapters deal with bony tumours and with odontomes, many new and suggestive facts being brought forward as to the origin and mode of development of the latter, which are grouped according to the portion of the tooth-germ which is essentially concerned in their formation. Very full accounts are given of the sarcomata, the important question of relative malignancy of the different species being specially dwelt on. One feature of the book we may here particularly refer to—viz., the paragraphs devoted to *treatment* at the close of each chapter.

Although the special surgical procedure suitable to each case is not described—nor could it be from the nature of the book—the question of operation is fully discussed, both from the point of view of cure and of prolongation of life, in many cases tables being given showing the mortality and the prognosis based upon the work of the most modern surgeons. This is a valuable feature and one that will bear amplification in a future edition.

Of the parts of the book dealing with Dermoids, and with ovarian and allied surgical affections, little need be said. They have been already discussed in this Journal in connection with the monographs of the author dealing with these subjects, and we can only add here our admiration of the clearness of style and thoroughness of grasp with which they are treated of. Mr. Sutton brings to his work besides a wide range of knowledge of comparative and human anatomy and pathology, a very considerable experience as a practical surgeon, and the gifts of a popular scientific lecturer, with the result that he can make the dead bones of abstruser studies breathe almost the living breath of fiction or imagination. This is one of the supreme charms of his writings, and one that, from a reviewer's point of view, we regret is not more widely distributed.

The final chapter deals—and deals somewhat superficially—with the "Cause of Tumours." This is, of course, a question that at the present time rather lies in abeyance, while the supporters of rival schools are working out their respective theories. We think, however, in connection with the subject of tumours, a somewhat full reference should have been made to the most recent views on the heredity of the germ plasma, and on immunity either acquired or transmitted. In conclusion, we have only to express again our admiration for the work, and to give voice to the hope that we shall soon see it in another and augmented edition.

Sprains: their Consequences and Treatment. By C. W. Mansell Moullin, M.A., M.D., Oxon., F.R.C.S., &c., &c. Second Edition. London: H. K. Lewis. 1894. 8vo. Pp. 150.

This is a reprint, revised and compressed, of Mr. Mansell Moullin's well and favourably-known monograph on Sprains. No work, whether published independently or embraced in a System of Surgery, has ever been laid before the profession more deserving of careful study; for in no work has the subject been treated from such a wide philosophic standpoint, or with the same fulness of practical detail which its importance demands. We have no hesitation in saying that many of the "opprobria chirurgiæ" would never have occurred had practitioners been familiar with the advice and methods laid down on sure common sense, and at the same time on scientific principles in this little volume. The art of the "bone-setter" would have been shorn of its fictitious glory long ere this, had the principles here enunciated met with universal acceptance.

In the treatment of the various classes of sprains much special training is needed. To one sentence we may direct the careful attention of all those who have to deal with this class of injuries. "To carry this out effectually—[*i.e.*, treatment]—two things are needed beyond all others. The one is a sense of touch so delicate that it can appreciate the least resistance or irregularity of movement; the other an accurate knowledge, not merely of the ordinary anatomy of the part, but of the different degrees of tension that fall on the ligaments in every position of the limb." Throughout, also, we may add, a rational limit is set to the benefits to be obtained by *massage;* and the extreme enthusiasm of faddists who brought this adjunct to treatment into disrepute is properly rebuked. We are pleased also to find in this work the fullest recognition we have yet met with of the fracture of the base of the thumb—described here as "sprain-fracture"—which was first recorded by Professor Bennett, and which has hitherto been most unjustly neglected by English writers on Surgery. Altogether, we have only for the work unqualified praise. Mr. Moullin is one of the few latter-day writers who show that a knowledge of medicine or surgery is not incompatible with a knowledge of the English language, and whose writings are not a jargon of solecisms and slipshod English.

Neurasthenia and its Treatment by Hypodermic Transfusions, according to the method of Dr. Jules Chéron. By RALPH BROWNE, M.R.C.S., L.R.C.P., Physician to the Chelsea Dispensary. London: J. & A. Churchill. 1894. Pp. 56.

DR. BROWNE maintains that hypodermic injections of saline solution form the most active tonic in existence, that they beneficially affect the brain and nervous system, heart, digestive system—in short, that they increase the vitality of the whole organism. Especially in that very vague condition "Neurasthenia" does he say these injections are advisable: they purify the memory of the debilitated; they waken the intelligence from its torpor; they even enable the injected individual to pass examinations with wonderful brilliancy.

But when we look for the details of this treatment, we search in vain. The author soars above all such trivialities. When we read a book which, while professing to advocate a new mode of treatment, avoids giving any details as to how the treatment is to be carried out, the idea is suggested to us that the author deems that his method of treatment can be more advantageously carried out by himself than by other medical men.

Clinical Diagrams, with directions for recording Cases of Heart Disease. By G. Herschell, M.D. Lond., Physician to the National Hospital for Diseases of the Heart. London: Baillière, Tindall & Cox. 1894.

These diagrams are intended to be torn out, and, being gummed on the back, to be attached to the notes of each heart case recorded. On each slip there are four diagrams, three representing the chest—(1) for areas of pain and tenderness; (2) for areas of dulness and of impulse; (3) for areas of murmur; while the fourth is intended to show the rhythm of murmurs and the characters of the heart-sounds. They are neatly printed in red, so that any marks made with ordinary ink are very plainly visible. Directions for using the diagrams are appended.

We have no doubt that these diagrams will be found useful by all who wish graphically to depict by means of figures the features of heart cases. They are sold in books at the rate of 6d. for 25 diagrams.

The Climate of Rome and the Roman Malaria. By Professor Tommasi Crudeli. Translated by C. C. Dick. London: J. & A. Churchill.. 1894. Pp. 163.

This is a translation of a course of lectures delivered by Professor Tommasi Crudeli, at the inauguration of the Institute of Hygiene, in connection with the University of Rome. The subjects discussed are—the climate, the soil, and the water of Rome; the Roman malaria, and its mode of development; the permanent sanitation of the Agro Romano; and the preservation of human life in malarious countries. The author strongly holds that malaria is neither carried from distant localities by winds, nor is produced in water, but is the product of the soil. As a prophylactic he recommends the habitual use of arsenic by all who live in malarious districts.

The work is mainly local in interest, requiring, as it does, to understand it fully, considerable acquaintance with the topography of the Campagna; but we believe it will be found of interest by those who intend to pass some time in Rome or its vicinity.

We notice one curious expression—pumping engines for draining marshy land are called "*hydrovorous machines.*"

Medical History from the Earliest Times: A Popular History of the Healing Art. By EDWARD THEODORE WORTHINGTON, M.A., M.B., Oxon. With two Illustrations. London: The Scientific Press, Limited. 1894. 8vo. Pp. 124.

THE task of compressing the whole "history of medicine and the medical profession from the earliest times to the beginning of the present century" into an octavo of 417 pages—exclusive of index—is by no means an easy one, and the author well deserves our best congratulations on the way in which he has carried it out. He has attempted, so far as possible, to make the representative physicians of various ages describe their theories and practice in their own words, especially through illustrated "cases" recorded by themselves. In order to combine this with the brevity demanded in such a work, matters which may be found in ordinary books of reference, or readily accessible translations, are passed over as lightly as possible; and, with few exceptions, only those practitioners are introduced who may be said to have had some definite influence on the progress of medicine. Similarly less space has been devoted to Harvey, Sydenham, Hunter, and others, whose work has been fully and frequently treated by abler hands, than to the Arabic and mediæval physicians, who are usually discussed more briefly than their historical importance seems to demand.

The writer has carried out his programme thoroughly and well, and has succeeded in compressing into a small space an enormous amount of intensely interesting and instructive information, conveyed in peculiarly well-chosen language, and in style of exceptional clearness and readability. The introduction opens with the name of Dr. OLIVER WENDELL HOLMES, whose recent loss the medical and literary worlds have united in deploring. The long course of time surveyed by the author is judiciously "divided into three periods, of which the first may be called the instinctive, empiric, or, from its characteristic theory of disease, the demonic epoch of medicine." The pre-Hippocratic era is dealt with under this head. "The great name of Hippocrates introduces a new era, that of Greek medicine, which forms the second and most extensive division of our subject." The three sects, into which the successors of Hippocrates soon divided, are well accounted for in the sections respectively devoted to their greatest respective representatives: Galen (Dogmatic), Sextus (Empiric), and Soranus (Methodic). The effects of the triumph of Christianity on the study of medicine is well described. For some centuries these mysterious investigations were, "in the West at least," "classed among those *studia Saracenorum*, or Arabic studies, which were held to be closely allied to necromancy, and fraught with danger to the souls of the orthodox." The third period of medical history "dates from the rise of a physiology founded no longer on speculation but on fact, and begins with that great discovery which has given the name of Harvey an immortality of reputation."

In his rapid glance at "Prehistoric Surgery," barbaric trephining takes foremost place, and the interesting hypothesis of Broca that "whenever a neolithic baby had fits, a hole was scraped in its head to let out the imaginary demon" is favourably entertained. The primitive medicine man "discovered at least three different methods of getting rid of a demon. First, the body of the patient may be rendered an unpleasant abode for the intending spirit, and that in many ways. The sufferer may be vigorously squeezed and pommelled, beaten, starved, fumigated by evil-smelling substances, or be given nauseous medicines, which are especially useful if they act as emetics." The first of these practices was, of course, the original form of *massage*. The "couvade" is accounted for by the fact that "in some races the husband refrains altogether from hunting at these times, lest the spirits of the injured animals should attack the helpless infant. It seems not impossible that he might sometimes go a stage further, and, finding himself debarred from his usual occupation on these interesting occasions, conclude that he must in same way be seriously affected by the event, and proceed to treat himself accordingly."

"Medicine in Ancient Egypt" is ushered in by a glance at the tomb of "Sekhet'enanch, chief physician to the Pharaoh Sahura of the fifth dynasty." "This appears to be the first mention of a physician in history;" . . . "few modern Egyptologists would place the fifth dynasty later than B.C. 3000, and we may safely assert that the interval between Sekhet'enanch and Hippocrates was at least as great as that which separates the 'Father of Medicine' from our own day. Physicians, as a class, are referred to in still more ancient inscriptions under the term 'snu'—a word represented hieroglyphically by what seem to be a lancet and cupping instrument."

An excellent summary is given of the leading features of the theories and practice of the principal men who have made the history of medicine. The author shows the painstaking research and discriminating judgment of an ardent student in dealing with the opinions and life-work of Hippocrates, Galen, Avicenna, Averroes, Rhazes, Avenzoar, &c., &c. He sheds a sympathetic tear over the fate of Servetus, whose treacherous murder by his theological opponent, the *saintly* John Calvin, will always remain one of the most perfect specimens of demoniacal villainy that soils the dark page of the criminal history of mankind. He gives rather too much credit to the "immortal" Harvey in the matter of the discovery of the circulation of the blood. But we can hardly call up a spirit of criticism after the perusal of this volume. Of sins of commission there are next to none; and we cordially recommend this short History of Medicine to the attention of every true lover of its science and its art.

Lectures on the Diagnosis of Abdominal Tumours. By WILLIAM OSLER, M.D., Professor of Medicine, Johns Hopkins University, Baltimore. New York: D. Appleton & Company. 1894. Reprinted from the *New York Medical Journal,* 1894. 8vo. Pp. 165.

THIS series of six admirable lectures by one of the ablest American medical clinicians of the day was delivered to the Post-Graduate class at Johns Hopkins Hospital, in November and December, 1893. The author, Dr. William Osler, is a many-sided man; he appears to be equally at home when he writes on the great theme of typhoid fever or lectures [illegible] the differential diagnosis of abdominal tumours.

The topics discussed in the six lectures are—tumours of the stomach, of which there were 24 instances under Dr. Osler's observation during a period of twelve months preceding the course of lectures; tumours of the liver, gall-bladder, intestine, omentum, mesentery, pancreas, and kidney. At the end of the fifth lecture, the author groups, under the heading "Miscellaneous Tumours," seven cases, in two of which the diagnosis was doubtful or could not be accurately made. These cases were—(*a*) a cyst of the abdomen of unknown origin (mesenteric), (*b*) multiple tumour masses in the abdomen (phantom tumour), (*c*) uterine fibroids, (*d*) sarcoma of the abdominal wall, (*e*) two tumours of doubtful nature, (*f*) large sacculated aneurysm of the abdominal aorta, characterised by undue mobility of the tumour. In this last case, Dr. Halsted did an exploratory operation, when the aneurysm was found to spring directly from the aorta just above the renal arteries. The case was then left to Nature and the patient quitted the hospital ten days after the operation, from which he made a rapid recovery.

This valuable monograph is illustrated by no less than forty-three woodcuts and photographs. The cases reported form an exceedingly instructive series of clinical records, which bear eloquent testimony to the diagnostic skill and acumen of the lecturer.

La Pratique Journalière de la Médecine dans les Hôpitaux de Paris (Maladies microbiennes et parasitaires, Intoxications, Affections constitutionnelles). Aide-mémoire et formulaire de thérapeutique appliquée. Par le Professeur Paul Lefert. Paris: J. B. Baillière et fils. 1894. 16mo. Pp. 288.

All medical practitioners will be obliged to Professor Lefert for presenting to them in a clearly-written and precise little volume a summary of the practice followed by the physicians of the Paris hospitals in microbic and parasitic diseases, blood-poisons, and constitutional maladies.

The work, based on the co-operation of eighty Parisian hospital physicians, contains more than four hundred opinions on the most recent and most varied clinical cases. The list of physicians includes such well-known names as those of

Brouardel, Chantemesse, Charrin, Chauffard, Debove, Dieulafoy, Dujardin-Beaumetz, Galliard, Gilbert, Grancher, Guinon, Hallopeau, Hanot, Hayem, Huchard, Hutinel, Jaccoud, Lancéreaux, Landouzy, Laveran, Legroux, Letulle, Marfan, Netter, C. Paul, Potain, Rendu, Richardière, Robin, Germain Sée, Talamon, and Widal.

In this book will be found the treatment of diseases which daily come under the observation of every practitioner—for example, malignant anthrax, cholera, diabetes, diphtheria, erysipelas, the eruptive fevers, hydrophobia, intermittent fever, gangrene, gout, influenza, malaria, mercurialism, morphinism, obesity, paludism, rheumatism, tuberculosis, tetanus, typhus and typhoid, vaccina, &c.

The physician who consults this little volume is always certain—no matter what may be his choice of a consultant—to secure the advice of one whose name is an authority. No matter how long he may have been in practice, he can keep himself informed of the new methods of treatment.

In order to facilitate reference to the book, two alphabetical indexes are appended—one of authors' names, the other of subjects. In this way we can at once have the opinion of such and such an authority upon the various questions which arise and, at the same time, pass in review the opinion of different clinical authorities upon a definite topic.

The book is clearly printed, and neatly bound in red boards. It is of a handy size and essentially a ready reference volume.

The Human Element in Sex: being a Medical Inquiry into the Relation of Sexual Physiology to Christian Morality. By DR. ELIZABETH BLACKWELL. New Edition. London: J. & A. Churchill. 1894.

THIS is a high-class philosophical thesis, composed on a subject of the highest interest and importance, by an accomplished and high-minded lady-member of the medical profession. As the opening sentence of the preface truly states:—"This work is written from the standpoint of the Christian physiologist." It is subdivided into an "Introduction," and six chapters, which bear the respective headings of "The Distinctive Character of Human Sex;" "Equivalent Functions in the Male and Female;" "On the Abuses of Sex—I. Masturbation;" "On the Abuses of Sex (*continued*)—II. Fornication;" "Development of the Idea of Chastity;" "Medical Guidance of Legislation."

Every paragraph of these chapters is egg-full of profound scientific and philosophic thought. As the authoress well observes: "The portion of our organisation most difficult of study, but also requiring the widest range of knowledge for its healthy guidance, is the faculty of sex." Her powers of personal observation are obvious throughout. "If an animal is not frightened by human beings it never hesitates in carrying on sexual congress in their presence, and neither before nor after the special act does it exhibit the smallest approach to shame in relation to it." She points out the evil results of both *masturbation* and *fornication*—the former is attended by two grave dangers: the first is from "the effect upon the mind, through the brain and nervous system, from evil communications or evil literature;" the second is "the risk of its becoming an overmastering habit, from the ease with which it can be indulged." With regard to the latter (*i.e.*, fornication): "One broad distinction separates this form of vice from masturbation—viz., that it necessarily affects two persons instead of only one. . . . . This necessity of considering the effects produced by a joint act upon two separate individuals greatly complicates the injury." Dr. Elizabeth Blackwell, "from the standpoint of the Christian physiologist," denounces the practice of fornication. "There is nothing more strongly marked in the earlier record of this religion than the stern, even awful condemnation of whoremongers." She speaks in eloquent language of "the Idea of Chastity": its Origin, its Nature, and its historic Development. She strongly denounces the public encouragement of the *social* [sexual] *evil*. "A Christian nation must recognise that the purchase of the weaker by the stronger is a cruel and debasing trade which must be checked, and that the substitution of promiscuous intercourse for Christian marriage is a physical and moral degradation to each half of the human race." We strongly recommend this little volume to the notice of all moralists.

Transactions of the Grant College Medical Society, Bombay: from January to December, 1893. Bombay. 1894. Pp. 205.

It speaks well for the spread of Western medical science in the Bombay Presidency that of the 165 members of the Grant College Medical Society—all holding regular qualifications—not more than a dozen appear to be Europeans. The Society meets monthly to hear and discuss papers, which are of the usual character and value. Perhaps we should except one which was read at the July meeting which was certainly startling, and which, it might appear to some, was better suited to an audience of Royal Horse Marines. Dr. W. K. Tavaria (carefully disavowing personal responsibility) read "Notes of a Case with a Tendency to Protracted Gestation—successive periods—12 months—21 months—54 months (communicated)." An anonymous medical friend supplied the materials, which the reader put forward "not without some hesitation." The lady was a Parsee, "of a scrofulous diathesis," aged forty-one at delivery in November, 1892, having been pregnant since May, 1888. The pregnancy must have lasted these 54 months, because the husband went to China (after she had quickened and had ceased to menstruate for four months) four years before she was delivered of a living female child. "The husband has not returned since, and we are justified in assuming his concurrence in the above view as to the cause of the abdominal tumour in his wife."[a] On the three former occasions, on which the lady was obviously practising for her final feat—her pregnancies lasting 12, 18, and 21 months—the husband had left her, each time, after conception.

At the August meeting Dr. D. R. Tata reported cases in which he had successfully practised hypnotism, and gave a demonstration of the process.

The Society convened a Special Meeting of the profession for the discussion of Fevers, at which an elaborate paper was read by Dr. N. N. Katrak. This and the subsequent debate occupy 73 pages of the Report before us. We have noticed on a former occasion the Report (here appended in full) of the Committee appointed to inquire into the effects of the administration of quinine in cases of fever during pregnancy.

Journal of the Scottish Meteorological Society. Third Series. No. X. With Tables for the Year 1892. Edinburgh and London: William Blackwood & Sons. 1894. Pp. 122.

THIS number of an old-established and eminently scientific annual publication is replete with valuable weather-lore. It will be necessary merely to give the titles of the leading communications in order to justify this statement.

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[a] India is a land of wonders in this department. We once heard of a white official whose white wife produced a black baby. The husband explained to his friends that the lady had indulged copiously in coffee during her pregnancy.

The veteran Secretary, Dr. Alexander Buchan, F.R.S.E., contributes a long article on the monthly and annual rainfall of Scotland, based on observations taken during the years 1866–1890, at 130 stations. In the ninth number of the Journal (third series) monthly returns of rainfall for 1891 are given for 327 stations in Scotland. This will show how largely the network of stations has been of late extended. The part of Scotland where the rainfall is smallest is the low-lying district round the Moray Firth, from Dornoch to Lossiemouth, where the annual amount varies from 23 to 26 inches. The absolutely driest place is Nairn and the vicinity. On the other hand, three parts of Scotland have an annual rainfall upwards of 80 inches. The south-western half of Skye is one of these. The second district is to the west of the Caledonian Canal, in the central parts of Ross-shire, Inverness-shire, and the north of Argyll, where the average at Glenquoich is 108·46 inches, and at Glenaladale 107 inches The third district is to the south-east of the Caledonian Canal, the largest averages there recorded being 127·65 inches in Glencroe, 118·35 inches at Bridge of Orchy, and 115·45 inches at Ardlui, at the head of Loch Lomond. Dr. Buchan's rainfall article is illustrated by a series of thirteen rainfall maps of Scotland, printed in colours.

The second paper is on the "Climate of Braemar," by R. C. Mossman, F.R.S.E., and represents the first part of an inquiry into the meteorology of the British hill stations. It is proposed to investigate the climatic features of such places as North Esk Reservoir, Wanlockhead, Dalnaspidal, Benquhat, and Tillypronie in Scotland, and Hawes Junction and Dartmoor in England, these being all situated at heights exceeding 1,000 feet above the sea. The inquiry will embrace the meteorological phenomena of the lower air right up to the level of Ben Nevis, Clement Wraggs' 1882 observations being utilised for heights exceeding 1,500 feet.

The other papers in the current number are one on "the geometric researches at the Ben Nevis Observatory," by Andrew J. Herbertson, and a comparison of observations at the low-level observatory and at the public school, Fort William, by R. T. Omond, F.R.S.E.

Then there are the usual reports from the Council to General

Meetings of the Society, additional returns of rainfall for 1892, meteorological returns from Scottish lighthouses for the same year, and full tables bearing upon the meteorology of Scotland for 1892.

It is a matter for regret that so long a delay should occur in the publication of so useful a periodical as this *Journal of the Scottish Meteorological Society.* Surely the tables for a given year might be compiled within six months of the close of that year.

Injuries and Diseases of the Jaws. The Jacksonian Prize Essay of the Royal College of Surgeons of England, 1867. By CHRISTOPHER HEATH, F.R.C.S. Fourth Edition, with numerous Wood Engravings. Edited by PERCY DEAN, M.S., F.R.C.S. London: J. & A. Churchill. 1894. Pp. 428.

THE fourth edition of Mr. Heath's well-known work will, doubtless, be welcome to those who have been familiar with previous editions, while to those who are as yet unacquainted with its contents, we strongly recommend the perusal of it in its latest form.

In presenting this edition to the medical profession, the author has had the advantage of Mr. Dean's collaboration as editor, and in this way has combined the most recent teaching in surgery and pathology with Mr. Heath's riper experience in that branch of surgery with which his name has been associated for so many years. As we reviewed the third edition in this journal ten years ago, we shall on this occasion confine our remarks principally to those points wherein this edition differs from the former one.

The present volume is shorter by some fifty pages than its predecessor, due chiefly to the omission of the Appendix of Cases—not to the curtailment of any of the more important matter in the main body of the work. In the chapter dealing with fractures of the lower jaw we notice, in addition to the familiar splints of Hammond and Gunning, a method, devised by Dr. Angle, of Minneapolis, in which metal collars are adjusted to teeth on either side of the fracture, supposing it to be in the region of the symphysis, to the collars are soldered tubes at right angles to the length of the tooth, a bar unites these tubes, which can be tightened with a nut and screw so as to fix the fracture. This method—together with a somewhat similar one for keeping the lower jaw fixed to the upper when the fracture occurs at the angle—Mr. Heath is of opinion, can be carried out only by those thoroughly practised in mechanical dentistry. We would even venture further than Mr. Heath, and doubt if even a skilful dentist could successfully apply such a splint to a *fractured* jaw, and think such an apparatus very liable to work loose after a short time. No doubt, the advantages sought to be gained by this method over the interdental and Hayward splints are that the bite is not interfered with, that there are no wires protruding from the mouth, and that there is nothing to retain foul discharges and so keep up a condition of sepsis. But we think that all these advantages may be obtained by some of the many methods of wiring the fragments together while the fracture at the same time is kept more securely at rest.

In writing on the after treatment of gunshot injuries, the author very properly refers to the methods recently brought forward by MM. Preterre and Claude Martin:—

> "The principle adopted by these dentists is to insert a mechanical contrivance into the mouth as soon as possible after the infliction of the wound, in order to prevent the cicatricial tissue pulling the remaining portions of the jaw out of their place during the processes of healing. When the wound is sufficiently healed, a suitable plate, bearing teeth if necessary, is fitted to the mouth. We thus see that the mechanical treatment is divided into two stages—immediate or temporary prothesis, and secondary or permanent prothesis. This method has not received a sufficient trial in this country for us to come to any definite conclusion; but it has been employed in France, apparently with excellent results."

So far so good. But why does the author apparently forget all about MM. Preterre and Martin, when later on in his work, when dealing with operations on the lower jaw, he refers to the deformity which ensues subsequent to the operation, the result of contraction, and the difficulty of inserting an artificial dentine. Surely, Mr. Heath—or rather, perhaps, Mr. Dean—is aware that it is in such cases some most successful results have been obtained by these French dentists, by taking a model of the parts prior to operation, the portion to be removed being accurately determined. An artificial substitute is constructed and placed *in situ* the moment the operation is completed, and so contraction during cicatrisation is avoided.

In the chapter on diseases of the antrum most of the recent literature of this subject has been laid under contribution, and, in the contention between nose and mouth specialists as to whether empyema antri has its origin more frequently in a diseased condition of the mucous membrane of the nose, or from an extension of inflammation of the root membrane of teeth whose roots lie in close relation to the floor of the antrum, the author inclines—we think rightly—to the latter view. Mr. Heath gives "certain methods by which the presence of pus (in the antrum) may be positively determined." They do not appear to us to be quite so convincing as they are to Mr. Heath. At all events it would have been well if the objections to their use had been also stated. For instance—

> "Illumination of the antra by means of an electric light held in the mouth is considered by some observers to be very useful in diagnosis. A very convenient apparatus for this purpose by Mr. N. Stephenson (Fig. 58) shows the lamp attached to a vulcanite plate, which is comfortably gripped by the teeth. Undue heating of the lamp is prevented by surrounding it by a glass bulb, through which air can freely circulate. By means of a powerful lamp a bright reddish-yellow light is thrown through the cheeks and lower eyelids. In purulent collections in the antrum a diminution in the amount of illumination is at once seen, especially in the intensity of the light transmitted through the lower eyelid."

We admit that this method is extremely pretty, but very far from positive evidence of the presence of pus when we take into account the fact that there is considerable variation in size, shape and consequent thickness of the walls of the antrum, not alone in different individuals, but even of the right and left antra in any given case, all of which circumstances seriously modify the amount of light, so that this method of trans-illumination of the antrum, as a means of diagnosis, is practically of no value.

The chapter dealing with cysts of the jaws has been re-written, and brought up to date, and conforms with the views of Eve, Malassez, and Albarran. The light which the researches of these pathologists have thrown on the ætiology of cystic tumours of the jaws is very happily summed up by Mr. Heath—

> "In conclusion, the consensus of opinion is certainly in favour of adopting Eve's views, that multilocular cysts are neoplasms of an epitheliomatous nature. In what particular kind of epithelium the growth originates is by no means certain. On the whole, it is most probable that they originate in connection with the ingrowth of epithelium which forms the enamel organ. It is quite possible, therefore, that dental cysts, dentiferous cysts, and multilocular cysts have a similar mode of origin. The exciting cause of this activity of the epithelial structure is probably to be found in diseases of the teeth, especially caries."

In the classification of odontomata Broca's arrangement of these tumours has given place to that proposed by Mr. Bland Sutton. This latter classification, by grouping dentigerous cysts, unilocular cysts, multilocular cysts, fibromata, hard odontomata, &c., is more pathologically accurate, and at once gives the clue as to their mode of origin. That such a grouping is not only possible but the probable one will be seen from Mr. Sutton's definition of an odontoma—

> "A neoplasm composed of dental tissues (enamel, dentine, and cementum), in varying proportions and different degrees of development, arising from tooth-germs, or teeth still in the process of growth."

An important addition is the chapter on parasitic diseases of the jaws, which contains a good description of actinomycosis, and a plate of the disease in its more advanced stage. Here, also we find an account of Zarniko's case of mycosis aspergillina, taken from the supplement of the *British Medical Journal*, 1891.

On the whole we are favourably impressed by the work, it being a decided advance on previous editions, and well calculated to sustain Mr. Heath's reputation.

Post-Nasal Growths. By CHARLES A. PARKER, Assistant-Surgeon to the Hospital for Diseases of the Throat, Golden-square, London. London: H. K. Lewis. 1894. 8vo. Pp. 98.

THE second chapter—the nucleus—of this little book is a reprint of a paper published in the current number of St. Bartholomew's Hospital Reports. The author has brought out the present volume with "the hope of bringing forward a few new points with respect to post-nasal growths, and of once more laying stress upon their importance as factors in the production of morbid conditions and actual disease." The other chapters are devoted to—"General Sketch of Post-Nasal Growths" (including Historical and Introductory Remarks); "Ætiology, Pathology and Symptomatology"; "Deafness and other Complications," and "Diagnosis, Treatment, Indications for Removal, and Prognosis."

In the preface he modestly disarms the critic by informing his readers that "this sketch, which is in no way meant to be an exhaustive treatise on the subject, will, I trust, be useful, and help to prove that there is more than sufficient excuse for specialists who so frequently urge the removal of these offending bodies."

The writer throughout uses the term post-nasal growths in its restricted sense, applying it only to adenoid vegetation or hypertrophic enlargement of the lymphoid tissue in the naso-pharynx. His description of symptoms and complications is everywhere characterised by original and strongly common-sense observation. He dismisses contemptuously the old (and, as we have always thought, preposterous) notion that enlarged tonsils in children can be regarded as the efficient cause of pigeon-breast or of Harrison's sulcus. "The truth is that in children enlarged tonsils are all but invariably accompanied by post-nasal growths, and these latter give rise to all the symptoms, complications, and sequelæ, formerly attributed to enlarged tonsils, and amongst them deformities of the chest." He dwells in the last chapter on the necessity for a thorough removal; and "consequently for a more prolonged anæsthesia than can be procured by the administration of gas." We cordially recommend this volume to all surgical practitioners.

Dwelling-houses: their Sanitary Construction and Arrangements. By W. H. CORFIELD, M.A., M.D., Oxon., F.R.C.P. Lond.; Professor of Hygiene and Public Health in University College, London; Medical Officer of Health for St. George's Hanover-square; Past President of the Society of Medical Officers of Health; Honorary Member of the Society of Hygiene of France; Honorary Corresponding Member of the Royal Society of Public Health of Belgium, of the Imperial Society of Medicine of Constantinople, and of the Royal Society of Hygiene of Italy; Fellow of the Medical Society of Sweden. Third Edition, with Illustrations. London: H. K. Lewis. 1894. Crown 8vo. Pp. 125.

THIS booklet is subdivided into six chapters, with the respective headings of—"Situation and Construction of Houses;" "Ventilation, Lighting, and Warming;" "Water Supply;" "Removal of Refuse Matter;" "Sewerage—Main Sewers and House Branches, Traps, Ventilation, &c.;" "Water Closets, Sinks, and Baths—Arrangement of Pipes, Traps, &c." The text is illustrated by forty-five instructive and well-chosen engravings.

In so small a space the author has not, of course, had room for the discussion of any debatable questions, nor for the elaboration of any verbose theories, nor for consideration of any abstract theorems in connection with the very important practical subjects on which he has undertaken to enlighten his readers. The substance of the text was originally "delivered as a course of Cantor Lectures before the Society of Arts." Since the publication of the former issue, "the work has been carefully revised throughout, and a number of special illustrations added for this edition." The author hopes that, in its present form, "the book may be useful as a short and practical exposition of the means by which dwelling-houses may be made wholesome." We have no doubt that this expectation will be amply fulfilled. We have nowhere met with so large an amount of the most important practical information concentrated within the limits of so small a space. The inestimable value of the preparation of healthy dwellings, as a foremost factor in procuring so fair a chance of health and happiness as to make life worth living for, is daily becoming more and more obvious to the thinking portion of the community; and we know of no better "first book" on this vitally important subject than this small work of Professor Corfield.

The Open-Air Treatment of Phthisis, as practised at Falkenstein, in the Taunus Mountains, Germany. By W. Bezly Thorne, M.D., M.R.C.P. London: J. & A. Churchill. 1894. Pp. 31.

This interesting lecture, delivered before the Royal British Nurses Association, describes fully the mode of treatment carried out by Dr. Dettweiler at Falkenstein. The sanatorium is built in a sheltered valley about fourteen hundred feet above the sea level, and faces the south. The main idea is that patients should be as much as possible in the open air; this end is attained by suitably constructed verandahs, summer houses, &c., which enable the patient to avoid almost any wind that blows sharply while sitting out—indeed, the inmates spend almost the whole day out of doors. The bedroom windows are kept open all night. Infection is carefully avoided by prohibiting all sweeping, &c., which tends to raise dust; all cleaning of rooms is done with wet cloths. The inmates are provided with portable spittoons, which are most carefully cleansed. Massage is employed in suitable cases, and all take exercise in degree proportioned to their strength. The patients are very well fed, and are expected to take a large quantity of nourishment.

As to results: In the ten years from 1876 to 1886 13·2 per cent. of the cases have resulted in complete cures, and 11 per cent. in "relative cures"—*i.e.*, restoration to health, notwithstanding the persistence of some signs in the lung and a small amount of expectoration. The average duration of a "cure" is 142 days.

This lecture is instructive as informing us about a not widely-known health resort, and also as giving several hints which may be of use in the management of cases of consumption at home.

Medical and Surgical Reports of the Boston City Hospital. Fifth Series. Edited by DAVID W. CHEEVER, M.D., GEORGE B. SHATTUCK, M.D., and ABNER POST, M.D. Boston. 1894. Pp. 174.

AMERICAN publications of this kind are generally so beautifully printed and illustrated that they delight the eye as well as satisfy the mind. This one is no exception. The Boston City Hospital contains, in its thirty-first year, 500 beds, and issues from time to time Reports of its experience. This fifth series gives us nine surgical papers, one medical paper, and six "contributions from the pathological department."

Recurrence of enteric fever is so rare that well-authenticated cases of second attacks are specially interesting. Dr. A. L. Mason records two, which were under his own care in both attacks. In both the interval was two years. One patient, a hospital nurse, was twenty-four years of age; the other, a male cook, twenty-one. A few cases recorded by other physicians (including Dr. J. W. Moore's case, detailed in his work on the Eruptive and Continued Fevers) are enumerated, their rarity justifying Dr. Mason's conclusion "that the immunity afforded by an attack of typhoid fever is as complete as in the case of the exanthemata, except, perhaps, small-pox, in which it is said that less than one per cent. of recurrences occur."

Dr. George W. Gay reports a case in which both common carotids were successfully tied for double aneurysm. At the age of seven a small pulsating tumour was observed on the left side of the patient's neck; ten years later a similar tumour appeared on the right side, no cause for either being known. On July 30, 1892, the left common carotid was divided between two ligatures, and on June 13, 1893—10½ months afterwards—a similar operation was performed on the right side.

"On coming out of the anæsthetic it was found that the patient's voice was very hoarse, and it was with difficulty that he could speak above a whisper. An examination with the laryngoscope showed paralysis of the right vocal cord. This was probably due to an inclusion of the right recurrent laryngeal nerve in the ligature applied to the vein. . . . Four months after the last operation—that is, the one upon the right side—a small pulsating tumor made its appearance apparently in the centre of the sac upon the left side, . . . very likely due to a dilatation of some anastomosing vessel. . . . It is now nineteen months since the last operation was performed, and the patient is at work at his trade as a dental instrument maker. The secondary aneurysm upon the left side increases very little, if at all, and gives him no trouble whatever. Aside from this, he is perfectly well."

Only one case of ligation of both common carotids has been found recorded since 1880. In Pilz's 600 cases (cited by Erichsen) of ligature of the common carotid for all causes the double operation was performed 27 times with 20 recoveries.

Everybody's Pocket Cyclopædia. By DON LEMON, for the London and Universal Bank, Limited, 449 Strand, Charing Cross, S.W. 650th Thousand. Pp. 234.

THIS booklet is described as a "Special Edition of Everybody's Pocket Cyclopædia of Things worth knowing; Things difficult to remember; and Tables of Reference." It is, primarily, a clever advertisement of the London and Universal Bank, limited. It is, secondarily, a wonderful storehouse of useful information, arranged in the most marvellous way and in the smallest possible compass. Science and sentiment meet in its pages, and there is scarcely a topic of everyday conversation which is not referred to and explained within its covers. The value of this little book is enhanced by the addition of a copious and well-arranged index.

Wright's Improved Physicians', Surgeons', and Consultants' Visiting List. Compiled by ROBERT SIMPSON, L.R.C.P., L.R.C.S. 1895. Bristol: John Wright & Co.

WE have pleasure in drawing the attention of the medical profession to this neat and yet comprehensive "Visiting List," which reached us as early as October 17. We notice several material improvements in this issue. For example, the paper is slightly thicker than that in the 1894 edition. Two pockets have been added in the cover; also a cash column to each page, two cash leaves to each month, and pages for vaccination engagements. The old-fashioned tuck has been replaced by a purse fastener, which will be more convenient and more easily handled.

The first sixteen pages are occupied by a series of very useful tables relating to utero-gestation, the principal drugs and their doses. poisons and their antidotes, the temperature of baths, comparative thermometer scales, average heights and weights of men, vital capacity of the lungs, average frequency of the pulse, chemical relations of morbid urine, weights and measures, the metric system, fees claimed by medical men at courts of law, remuneration paid to medical officers by the Local Government Board, facts concerning the principal zymotic diseases, postal regulations, income, &c. The utero-gestation table is included in a useful calendar.

The "Visiting List" is contained within the covers of a leather-bound, thin, soft, and comfortable pocket-book. Apparently through an oversight, there was no pencil in the pencil-pocket of the copy sent to us.

International Clinics. Third Series. In Four Volumes. Philadelphia: T. B. Lippincott Company.

We have before us the four volumes which form the Third Series of this handsome quarterly publication. The clinical lectures published in them are, for the most part, by American authors. Great Britain is, however, represented by such well-known names as Sir Dyce Duckworth, Prof. Sir Grainger Stewart, Drs. Sutton, Finlay, Saundby, Greig-Smith, Gairdner, Haig, and others. Drs. Budin, Tuffier, Blocq, and Brouardel represent the medical profession in France.

As might be expected, the value of the lectures differs much; some are important and valuable lectures on various subjects, while others are brief records of cases, some of which are of no great interest or importance. Among the former class we may mention—in Volume I.—lectures on Non-rheumatic Arthritis, by A. E. Sansom; The Thyroid and its Diseases, by T. Oliver; Neuralgias of the Fifth Pair, by J. J. Putnam (this careful paper is illustrated with a number of woodcuts illustrating the microscopic anatomy of affected nerves); The Surgical Treatment of Gall Stones, by A. Pearce Gould; and on Flatfoot, by J. Scott

Riddell. In the second volume we must call attention to papers on Common Sources of Mistaken Diagnosis, by G. L. Walton; Injuries of Nerve Trunks, by P. H. Millard; Some Forms of Septic Arthritis, by J. A. Dunn; and Alopecia, by A. Ohmann-Dumesnil, In Vol. III. there is an excellent and well-illustrated paper on Syringomyelia, by W. Sinkler. In Vol. IV. we also find a careful paper on this same subject by J. T. Eskridge; we also note papers on The Early Symptoms of Aneurysm of the Aorta, by Prof. Gairdner; on Hydatids of the Male Urinary Bladder, by Henry Fenwick; and a careful paper on Irrigation in Gonorrhœa, by E. Martin.

Some of the papers are very elementary; we hardly expect to have it explained to us in a periodical of this kind why it is that cirrhosis of the liver often causes ascites, or that a silk ligature may act as a foreign body in a wound and keep open a sinus.

While we are disposed to admit that a series of first-class clinical lectures might be advantageously published in a permanent form, we must say we do not look with favour on the great mixture of subjects that is treated of in each of these volumes, each of which includes lectures belonging to every branch and specialty of medicine. We believe that a far more useful series could be obtained if each volume was devoted to monographs on some given subject. In one volume let us have a series of lectures on the lungs, in another on the kidneys, in another on skin diseases, in another on gynæcology, and so on—then we would know, when we needed to consult the series, what volume to refer to, and we believe that such a series of monographs or lectures would prove a great boon to the profession at large.

International Clinics: a Quarterly of Clinical Lectures. Fourth Series. Volumes I. and II. Philadelphia: J. B. Lippincott Company. 1894. Pp. 358 and 358.

THESE two volumes continue the series which we have reviewed in these columns on several former occasions. On the whole, the volumes before us seem somewhat the best of the series. Several of the lectures are very good. We feel, however, that many of the articles are too elementary to deserve a place in a permanent collection such as this. In a first-class medical magazine it ought not to be necessary to illustrate with woodcuts such ordinary instruments as a Eustachian catheter or a steam spray.

We hold that the arrangement of these volumes, as in the case of their predecessors, is faulty in permitting too miscellaneous a collection of lectures to be put together, and we think some of the lectures are rather elementary. But we believe these "International Clinics" will prove of considerable value, especially to those who, living in parts of the country remote from the centres of medical work, find it difficult to keep themselves familiar with modern improvements and advances.

Lectures on General Pathology. By JULIUS COHNHEIM, Professor of Pathology and of Pathological Anatomy in the University of Leipsig. Translated from the Second German Edition, by ALEXANDER M'KEE, M.B. Dub.; Curator of the Museums, Royal College of Surgeons, Ireland. Section II.: The Pathology of Nutrition. London: The New Sydenham Society. Pp. 290.

THIS volume contains Cohnheim's lectures on nutrition—necrosis, atrophy, hypertrophy, fatty and other degenerations. It also contains a chapter on tumours, wherein is expounded the famous theory of embryonic remnants. The New Sydenham Society have done well in publishing these famous lectures in an English form. All praise is due to Dr. M'Kee for his excellent translation.

THE AMERICAN MEDICO-SURGICAL BULLETIN.

THIS periodical, published twice monthly in New York, is in its seventh year. The number before us contains 64 pages of closely printed matter, of which twenty are occupied with original contributions. A large proportion of the remainder is devoted to reports of the New York Academy of Medicine. An editorial note announces the passing of a bill by the New York legislature for the establishment of the Craig Colony for Epileptics. One thousand eight hundred and seventy-five acres of land are to be bought in the Genesee Valley, with suitable buildings (erected by a colony of "Christian Believers") on the ground. Six hundred epileptics, now dispersed in the county alms-houses, will be settled here immediately, and it is expected that the colony will ultimately number 1,500 to 2,000.

PART III.

SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.[*]

By Sir Charles A. Cameron, M.D.; D.P.H., Camb.; M.R.C.P.I.; Ex-President, Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.; President of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee.

(*Continued from page 350.*)

BERI-BERI.

An outbreak of beri-beri in the Richmond Lunatic Asylum, Dublin, has directed attention to this remarkable disease, hitherto unknown in Ireland. There are 1,483 inmates in this Institution. On 1st August, 1894, the number was as high as 1,530 though the buildings are only intended to accommodate 1,100 as a maximum. During the month of October, up to the 23rd, only two new cases have occurred, so that probably the outbreak has terminated. Within the last two months, 150 have developed a disease resembling closely beri-beri, if it be not actually that malady. Up to the present 20 patients have succumbed to the disease. The earliest symptom noticed is œdema of the legs; this subsides somewhat if the case progresses and peripheral neuritis appears. Difficulty of breathing due to œdema of the lungs occurs, and the heart becomes very weak. In the majority of cases hyperæsthesia is demonstrated when pressure is applied to the skin. In many there is a general anasarcous condition. Some of the patients have become paralytic. The *post-mortem* examination reveals hydropericardium, œdema of the lungs, ascites, and fatty degeneration of the heart and kidneys.

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[*] The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

Many medical men—some with experience of beri-beri—have seen the patients; but, so far, there is no unanimity of opinion as to its cause or its absolute identity with beri-beri. The pathology and bacteriology of the disease are being investigated by Drs. Scott and O'Sullivan, who have not yet reported the results.

It is very remarkable that a disease such as beri-beri should appear in a Dublin institution, attacking only its insane inmates and sparing its officers. There is no evidence to show how the *materies morbi* of the disease—presuming it to be an imported one—gained access to the institution. None of its inmates have been lately in any country in which the disease is endemic.

Beri-beri is said to be a disease which appears amongst persons who suffer from deficient nutrition, or who are placed under bad hygienic conditions. It appears in crowded gaols. The symptomatology of the disease shows how various in its aspects it is.

In the *Sanitarian* (New York) for October, 1894, there is an account of a paper read before the American Climatological Association by Dr. Judson Deland, of Philadelphia, on several cases of beri-beri which were studied by him. The patients were members of a mixed crew of a vessel from the East Indies, who had been placed in quarantine at Philadelphia. In one case the temperature was normal—there was emaciation, epigastric tenderness, anæsthesia and especially hyperanæsthesia of the finger tips. The blood was normal. In another case the patient was weak; had general œdema; pulsating jugular, extensive nervous disturbance; tricuspid murmur; and much dyspnœa on exertion. His blood was normal and free from parasites. There was anæsthesia of the buccal and nasal mucous membranes, and also dilatation of right and left ventricles. The lungs were normal and there were no knee jerks. In a third case the features were those observed in both of the other cases. The patients had been fed on salt fish and bad rice. Their perspiration was offensive.

In the discussion which followed Medical Director A. L. Gihon, U.S. Navy, remarked that he had seen many cases of beri-beri: they were all characterised by anasarca, debility, and anæsthesia. They recover under a proper system of diet. He considered the disease simply one of malnutrition. Dr. Nelson had experience of beri-beri in South America. The patients died, as a rule, from general anasarca. He considered the disease a neuritis, and that the predisposing causes were neglect and poor diet. It was quite common in Brazil.

Beri-beri is met with in India, Ceylon, Japan, Africa, the West Indies, and many other places principally tropical or sub-tropical. The endemic disease termed kakké in Japan is believed to be beri-beri. It prevails mostly in summer and autumn. The percentage of cases which terminated fatally was formerly about 12, but has decreased to about one-third of that rate. I find in a Report published by the Japanese Government that in the year 1883 22,531 cases of this disease were reported, of which 991 terminated fatally. Of these cases 21,037 were amongst men, and only 1,433 amongst women. It is most prevalent amongst the army and navy, 11,038 of the 21,087 cases having appeared in those services.

The bacteriology of beri-beri is not in a thoroughly satisfactory state, and it seems not improbable that the disease may occur sporadically. The outbreak in the Richmond Asylum seems, so far as one can judge, to have arisen spontaneously. It is a tempting opportunity to indulge in speculations. If the disease originated spontaneously, did it do so in each case, or did it originate in one or a limited number of cases, which then assumed a contagious form? If contagious, how? All contagious diseases are generally believed to be the result of the introduction of specific organisms into the system, each case being therefore the result of an antecedent one. If the disease in the Asylum be contagious it is rather odd that none of the officers of the Institution have contracted it. If the 120 cases were small-pox or typhus fever who can doubt that the disease would not continue to appear only amongst the insane inmates.

From my knowledge of the insanitary conditions under which the inmates of the asylum have been placed I am not surprised to find them ravaged by a zymotic disease, or by a malady admitted to be, like beri-beri, the result of bad hygienic conditions. Dr. Conolly Norman has, since he became superintendent of the asylum, continued to urge upon the asylum governors the urgent necessity for providing better accommodation for the inmates. The Inspectors of Lunatic Asylums, Dr. Plunkett O'Farrell and Dr. E. Maziere Courtenay, have also repeatedly brought under the notice of the Board the overcrowded condition of this asylum. I believe that it was at the suggestion of Dr. Conolly Norman that the Board requested me in March, 1893, to inspect and report upon its sanitary condition. I made a very unfavourable report, from which I extract a few paragraphs—

"THE DAY ROOMS.

"The Day-rooms, especially those on the upper stories, are pretty large and fairly ventilated apartments, but they were overcrowded when I inspected them. The square space per inmate is 26 feet, and the cubic space 310 feet."

"THE DORMITORIES.

"There is only one point in connection with the Dormitories which I can commend, and that is their cross ventilation. Everything else is bad or inferior, but the principal defects may be considered under three heads, namely—(1) Want of superficial space per bed; (2) Want of cubic space per bed; (3) Excessive dimensions."

"WANT OF SUFFICIENT SUPERFICIAL SPACE.

"The number of beds in the dormitories appears to the eye to be excessive, but at night other beds are brought into the dormitories and are placed between the rows of permanent beds.

"The mean square space per bed is only 44 feet, but the space is not uniformly distributed, and some of the beds have less than 40 square feet. It is laid down by all the authorities on hospital hygiene that in the wards of a general hospital, and for non-infectious cases, 100 square feet per bed is the minimal amount which should be permitted. At the Edinburgh Royal Infirmary the floor-space is 149 feet per bed. Of course, in the hospital ward the patients are there, as a rule, day and night, but in the asylum dormitories the inmates only sleep there, and during their absence there is thorough clearing out of the vitiated air. We must make some allowance between the space per bed in a dormitory and in a hospital ward, but 20 per cent. in favour of the latter would be sufficient. In the case of the Richmond Lunatic Asylum I have no hesitation in stating that the square space per bed ought to be increased 50 per cent."

"THE CUBIC SPACE.

"The cubic space per bed is on the average 520 feet, but as in the case of floor surface it is not equally distributed.

"The Paris hospitals have a mean of 43 cubic metres (1518·33 feet), whilst the mean of several London hospitals is 1,826 cubic feet. In the Edinburgh Infirmary the space is over 2,000 cubic feet. In barracks the *minimal* space fixed is 600 cubic feet, but the highest authority on Military Hygiene—the late Professor Parkes—says that soldiers should be provided with 1,000 cubic feet per bed in their sleeping-rooms. All this shows what terrible overcrowding there is in the dormitories of the Richmond Asylum."

"SIZE OF THE DORMITORIES.

"Bad as are the conditions of the dormitories as to square and cubic space per bed, much worse are they in regard to the aggregation of patients. The smaller the number of patients or healthy persons sleeping in the one apartment the better. When a large number are aggregated in a dormitory there is always a probability that one or more of them may be suffering from some constitutional or zymotic disease, which may render their products of respiration or the exhalations from their bodies injurious to the other occupants of the dormitory. The evils of huge dormitories are now generally recognised; and in hospitals of recent construction the wards are always small, containing only from 12 to 16 beds.

"In the Richmond Asylum the aggregation of persons at night is carried out to an extent which I do not hesitate to term appalling. On each floor the dormitories are in free connection with each other, and so far as the interchange of air is concerned, all may be regarded as a single apartment containing nearly 300 persons. To make matters worse, the corridors intended to aid in the ventilation of the dormitories, and to afford access to them and to the rooms intended each for a single patient, have themselves been actually converted into sleeping apartments.

"No doubt this free communication between the dormitories, small sleeping-rooms, and corridors is designed with the object of enabling the attendants to keep the patients under constant observation; but, hygienically, it is a system which no grounds of convenience or economy in administration can justify."

"NO HOSPITAL FOR INFECTIOUS CASES.

"There is probably no public school, however small, unprovided with an infirmary for infectious cases; yet in the Richmond Asylum, with more than fourteen hundred inmates, there is no fever hospital, nor does it seem that infectious cases are removed to any of the city fever hospitals. At present (1893) there is an epidemic of typhoid fever in the institution, and the patients are under treatment in the only hospital attached to the place, and in which infectious and non-infectious cases are perforce treated. When I inspected this hospital on Thursday last, I exclaimed, "This place recalls to my memory the gruesome descriptions of prisons and hospitals in the last century, given in the memoirs of Howard the philanthropist. I did not think such a state of things could possibly exist at the end of the century." This little hospital consists chiefly of two apartments of equal size, namely, 450 square feet, 5,175 cubic feet. Each contains 9 permanent beds, but at night the number is made up to 16, and the whole surface of the room is practically covered with beds.

I calculated that the floor-space per bed was 28 square feet, and the cubic space 323 cubic feet.

"In fever hospitals the square space varies from 100 to 200 feet, and the cubic space from 1,200 to 2,500 cubic feet. The minimal floor surface should certainly be 100 feet, and the cubic space 1,200.

"It is extraordinary that up to the present no cases out of the large number of typhoid cases has terminated fatally, though one or two seemed to me to be in a precarious state. It is probable that the effects of the bad hygienic conditions under which the patients in this hospital are placed have been neutralised by the excellent medical treatment and nursing which they have received.

"I understand that Dr. Conolly Norman has repeatedly called attention to the overcrowded state of the institution. He and his assistants have certainly, by attention to ventilation, observance of cleanliness, and general good care of the patients, minimised the evils incidental to overcrowding. I find, too, on referring to the Annual Reports of the Inspectors and Commissioners of Control of Lunatic Asylums, that these gentlemen have repeatedly urged the necessity of providing additional accommodation in the Richmond Asylum.

"If the hygienic conditions under which the Richmond Asylum are placed be as bad as I have represented them to be, we might expect to find a high rate of mortality prevailing amongst its inmates. Let us see if such be really the case. It would not be fair to assume that the mean duration of life in lunatics is the same as in the case of the sane; but the difference ought not to be very great. The majority of lunatics are diseased in mind and not in body, and the statistics of private lunatic asylums show that a large proportion of their inmates have a fair duration of life. I find that the inmates of the Richmond Asylum are favourably situated as regards age. With respect to the probable duration of their lives, the highest death-rate prevails amongst children under five years. Whilst about 20 per 1,000 persons of all ages die annually, nearly 60 per 1,000 of children under five years die. From five to twenty the rate is about 10 per 1,000 persons living, and from twenty to forty about 14 per 1,000. From forty to sixty the rate rises to about 27 per 1,000, and from sixty to eighty to nearly 80 per 1,000. Now, about half of the inmates in the Richmond Institution are of ages at which the mean expectation of life is considerable; 660 are under forty years of age, 552 are from forty to sixty, and 147 are over sixty. The ages of the remaining inmates are unknown.

"Now when we come to study the mortality statistics of the asylum, we find a death-roll that is truly appalling. In 1892 it was 125 per 1,000 persons living. In the population at large the death-rate is lower amongst females than males; in the Richmond Asylum the reverse is the case, which seems to show that the women are placed under worse sanitary conditions than the men. The death-rate was 133 per 1,000 women, and 117 per 1,000 men. In considering this enormous mortality, it must be borne in mind that the patients have only on the average about four years residency in the institution.

"The clearest proof as to the effect upon the health of the inmates produced by overcrowding, and by faulty construction of the dormitories, is shown by the fact that 61 of the 181 deaths in the institution in 1892 were ascribed to consumption. The mortality from this disease was very much greater amongst the females; 47 women died from it as against only 14 deaths of males, there being little difference in the relative numbers of males and females in the asylum. Nearly half of the deaths of females in the asylum are due to consumption, whilst amongst the general population only about 8 per cent. of total deaths are due to consumption. It is well known that overcrowding is a powerful factor in spreading consumption.

"It seems pretty clear that the old buildings in which the female lunatics are kept are in a much less sanitary condition than the new buildings in which the male lunatics are lodged. I think that means ought to be found to lesson the frightful mortality amongst the former class of inmates.

"I have ascertained the mortality of patients in the well-known Bethlem Hospital for the Insane, London. In the report of that institution for 1891 (the latest issued) the percentage of deaths on the average number of residents was 9·8 for males, and only 2·8 for females. The higher mortality amongst the males was due to general paralysis of the insane, a condition affecting equally body and mind, and a disease which is comparatively rare in Irish lunatic asylums. In 1891, 60 per cent. of the deaths of males in Bethlem Hospital resulted from "general paralysis," whilst in the Richmond Asylum very few of the deaths in 1892 were ascribed to general paralysis. In the Bethlem Asylum one death out of a total of 14 was ascribed to consumption."

The Board decided to remove a large number of the inmates; but it was not easy to get suitable buildings for the purpose. The great increase in the number of persons for whom admission to lunatic asylums is sought, renders it difficult and costly to keep the accommodation *pari passu* with the demands upon it. This has been particularly the case with the Richmond Lunatic Asylum, which was originally intended for the accommodation of at most 1,100 inmates. I am strongly tempted to believe that to the very unhygienic conditions under which the patients are placed, the present outbreak of beri-beri is altogether due.

VITAL STATISTICS OF JAPAN.

It is my good fortune to be the recipient from the Japanese Government of the numerous sanitary and medical reports, published in the English language by that progressive nation. The Central Sanitary Bureau is composed of a director, with a staff of thirty-nine assistants, and is placed in the department of the Home Minister. It issues reports on vital statistics, outbreaks of cholera and other disease; the status of disease, medical, chemical, and pharmaceutical institutions and affairs. Beautifully executed maps, plans, and diagrams accompany some of these reports. I have just received the Annual Report of the Central Sanitary Bureau, for 1890, published in Tōkyō, in 1893. From it we learn that in 1890 there were 1,145,174 births in the Empire, or in the ratio of 28·15 per 1,000 of the population, 1 birth per 35·53 persons. The highest rate in Prefectures was 36·85, and the lowest 34·01. In 1889 the rate was 30·15. There was 1 still birth per 12·48 mature birth. The ratio of births to 100 couples was 14·53.

The deaths numbered 821,043, or in the ratio of 20·18 per 1,000 persons. The highest rate was in Osaka, 28·07, and the lowest in Okinaiva, 9·6.

There were 53,927 deaths from zymotic diseases. This was about double that of the preceding year, the increase being caused by cholera and dysentery. The cases reported numbered 126,383; therefore the ratio of mortality was 42·67 per 100 cases. The six principal zymotic diseases are cholera, dysentery, typhus fever, typhoid fever, small-pox, and diphtheria. Vaccination seems to be thoroughly carried out. There were 1,401,226 examinations of unfortunates, of whom 44,700 were found to be affected with syphilis. There are 40,880 physicians in Japan, or 1 per 973·33 of the population. The licensed midwives number 828. The "pharmaceutics" in 1890 were 2,689, and the druggists 10,390. Two examinations for medical men and for pharmaceutists are held annually. Each candidate undergoes two examinations, primary and final. There are three public laboratories, in which nearly 3,000 analyses (drugs, water, food, colours poisonous matters, &c.) were performed in 1890. Examinations of the milk of Japanese and foreign breeds of cows showed that the former was richer, and contained more fat. Of thirty-five coloured toys used by children only eight were found to have innocuous colours.

Table showing the number of deaths according to the classification of diseases during the last five years.

DISEASES.	1886	1887	1888	1889	1890
Infectious and contagious diseases	180,638	54,664	45,715	48,486	78,583
Diseases affecting general development and nutrition of the body ..	145,563	129,866	127,218	137,295	133,599
Diseases of the skin and muscles	14,889	12,468	11,654	12,016	10,719
Diseases of the bones and joints	6,305	6,115	6,412	7,437	7,023
Diseases of the circulatory system	25,086	24,703	27,124	31,027	29,373
Diseases of the nervous system and special senses	179,364	165,074	171,992	182,247	172,943
Diseases of the respiratory system	132,565	126,322	128,618	135,488	137,699
Diseases of the digestive system	203,414	178,464	182,613	205,625	193,690
Diseases of the genito-urinary system ..	26,659	25,187	26,145	27,097	26,231
Surgical cases and effects of violence	18,305	16,566	16,226	18,701	19,718
Poisoning	707	878	814	461	606
Causes unknown ..	13,947	14,553	12,336	12,074	10,859
Total	947,392	758,855	756,357	817,954	821,043
Consumption (included in the diseases of respiratory system)	36,188	36,367	39,687	42,811	46,449

The population of Japan in 1890 was 40,692,808.

The following table shows the ratio of deaths per 1,000 persons of the whole population, and also the ratio of the excess of births over deaths during the last ten years:—

Year	Ratio of deaths per 1,000 persons	Ratio of the excess of births over death per 1,000 persons
1881	18·7	7·0
1882	18·1	6·9
1883	17·7	8·3
1884	18·45	0·25
1885	22·67	0·67
1886	24·60	3·80
1887	19·29	7·89
1888	19·14	10·46
1889	20·36	9·81
1890	20·18	7·97

(*To be continued.*)

STRYCHNIN *v.* CHLOROFORM.

Gaillard's Medical Journal quotes from the *Therapeutical Gazette* a case "of a patient who had swallowed two ounces of chloroform with suicidal intent, being found in the street in a condition of profound narcosis. His pupils were widely dilated and inactive. His respiration was so shallow as to be almost imperceptible, and he had the weak, irregular pulse of a dying man. One-twentieth of a grain of strychnine was injected hypodermically, and artificial respiration applied, with the result that after a few minutes the whole aspect of the case changed, the respirations becoming deep and full, and the pulse also improved. After an hour another injection of one-sixtieth grain of strychnine was given. Two hours after being called to the case the author was able to communicate with the patient, and to get him to confess the cause of his condition. Recovery was complete, the patient, however, passing through a severe attack of gastritis."

DISAPPEARANCE OF RIGOR MORTIS.

The *Gazette Médicale de Paris* summarises a note of M. Tissot's presented to the Académie des Sciences on "The excitability of rigid muscles and the causes of the disappearance of cadaveric rigidity." His experiments show that putrefaction is not the cause of the relaxation of rigor mortis. He found, firstly, that no bacteria are ever found in rigid muscles (when the animal has not died of an infectious disease); and, secondly, that none are found at the moment when rigidity ceases, nor until after an interval, sometimes protracted. He shows, also, that the other cause assigned—the solution of myosin by acid formed in the muscle—does not exist, the muscles not becoming acid, and remaining alkaline after the rigidity is relaxed.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—George H. Kidd, M.D., F.R.C.S.I.
General Secretary—W. Thomson, F.R.C.S.I.

SECTION OF OBSTETRICS.

President—Andrew J. Horne, F.R.C.P.I.
Sectional Secretary—F. W. Kidd, M.D.

Friday, May 18, 1894.

The President in the Chair.

Exhibits.

Dr. Wm. J. Thompson exhibited an anencephaloid fœtus.

The following are the notes he made of her case:—Age, forty-three years. Married ten years, the mother of three children; two living, both strong and healthy; last child born three years ago; had large spina bifida, and died after two days. It will be seen to be a typical specimen of anencephaloid monstrosity. The face is perfectly developed—mouth, tongue, and eyes; the nose was very broad and flattened like that of the negro race. The vertical portion of the frontal bone, the two parietal bones, the squamous portion of the temporal, and all the occipital bone (except the base) are wanting. The cervical vertebræ are normal; there is no spina bifida or talipes, which is usual in such cases.

The following dissection, first, of the anterior portion of the body shows a right rectus sternalis muscle well developed. This muscle is seldom found in the dissecting-room, but in malformations it is quite common, five out of every six such cases having it.

It was not until the researches of Bichat in creating the science of Histology, and so reducing the complex structures of the body to their elementary tissues, that the present theory of anomalies and monstrosities was founded—viz., "that of arrest and retardation of development or of excessive formative energy."

Dr. W. J. Smyly showed a myomatous uterus which he had removed from a primipara, aged forty, in the Rotunda Hospital. Upon abdominal examination the uterus was found infested with myomatous nodules, the fœtus presenting in the second position, with the head freely movable above the pelvic brim. Per vaginam, a tumour as large as a fœtal head was found occupying Douglas' pouch, and encroaching upon the conjugate diameter to such an extent as to render the passage of the child impossible. The tumour was firmly fixed, and the presenting part could not be reached by the examining finger. Abdominal section was performed on Friday, May 4th, and the uterus drawn out and opened. The fœtus extracted began to cry almost immediately, and is still alive and well. The removal of the tumour was difficult owing to firm adhesions and to its extensive extra-peritoneal development, necessitating careful enucleation. An elastic ligature was placed around the cervix, below the tumour, and the latter, with the uterus, removed. The stump, too short to be treated extra-peritoneally, was extirpated per vaginam, the broad ligament having been secured by clamps. A large mass of tissue was, however, found outside the clamp on the left side, and another clamp having been placed outside of this it was removed, and upon examination was found to be a second uterus, with a normal non-pregnant cervix, which easily admitted a uterine sound. The patient developed a thrombosis in the short saphenous vein of her left leg, but was progressing favourably.

Dr. Alfred Smith stated that the patient originally came to him complaining of great pain and cessation of menstruation. The signs of pregnancy were so badly marked that it was only when abdominal section had been performed with a view to removing the uterus, and the uterus grasped and ballottement obtained, that the diagnosis of pregnancy was established. The wound in the abdominal wall was immediately stitched up, and the case allowed to go on to full term. Some severe pain a few hours after seemed to threaten a miscarriage, but the pain was allayed by morphia, and the patient got quite well.

Dr. Purefoy related the history of a somewhat similar case which had come under his care. A lady came to him last autumn, complaining of a hard lump in her abdomen and of cessation of menstruation for the past six weeks. She was forty years of age, and had been married ten years. He examined the woman and concluded that she had a large fibroid of the uterus, and he told her not to be alarmed at the cessation of menstruation, as that was rather a favourable thing, and that she should go home and not be anxious about herself. Dr. Smyly also saw the case, and considered it to be one in which operation should be refrained from. Some three weeks ago he heard from the husband, on writing to inquire after her, that she and her baby were doing quite well. He had no had suspicion at the time he examined her that she was pregnant.

Dr. Smyly also showed a uterus and double pyosalpinx removed per vaginam. The patient was in a very debilitated condition from prolonged hectic fever, which necessitated the operation. He adopted this particular method in consequence of the brilliant results obtained by M. Segond and others, and having had the advantage of seeing the operation performed by Dr. Landau, in Berlin, he was favourably impressed by the result. The operation was not more difficult than an abdominal one would have been, but the left ureter was unfortunately drawn down and included in the clamp. The patient died of peritonitis on the 5th day.

The Ætiology, Prevention, and Treatment of Puerperal Septicæmia.

Dr. Thomas More Madden read a paper on the above subject. [It will be found in Vol. XCVII., page 477.]

Dr. E. Hastings Tweedy said that he was glad to hear Dr. Madden giving the preference to aseptic instead of antiseptic treatment. Students were apt to imagine that merely dipping their hands in a solution of corrosive sublimate rendered the conduction of labour, as far as infecting the woman was concerned, devoid of danger. They did not realise, as a rule, that they must have their instruments laid on aseptic material, and that the basins they used must be rendered aseptic. He also said that the experience of large maternities was against the view that septicæmic infection was conveyed by the air.

Dr. A. Smith pointed out the great difficulty met with in private practice, especially in England, in getting a nurse who understood and practised the aseptic or antiseptic management of a case and of obtaining aseptic surroundings.

Dr. Doyle drew attention to the necessity of men engaged in midwifery practice refraining from, at same time, attending infectious cases.

Dr. Smyly emphasised the advantage of aseptic treatment over the antiseptic treatment. He said that Professor Leopold was one of the first to insist on the danger of vaginal examinations, even when made with antiseptic precautions, and of the antiseptic vaginal douche as a prophylactic measure. He thought that prophylactic douchings should be avoided. He had read in the *Lancet*, some three weeks ago, a leading article stating that all that was at present known of value in the management of childbirth, as regards the avoidance of septicæmia, could be found in any book of ten years ago. He did not agree with this, but considered the adoption of the aseptic in preference to the antiseptic treatment to be one of the greatest advancements in obstetrics.

Dr. More Madden briefly replied.

The Section then adjourned.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—PROFESSOR FRASER.

Sectional Secretary—AMBROSE BIRMINGHAM, M.D.

Friday, May 25, 1894.

The PRESIDENT in the chair.

Exhibits.

DR. BIRMINGHAM exhibited—(1) a specimen of horse-shoe kidney, in which the two kidneys lay over the common iliac arteries and extended into the true pelvis, the isthmus lying on the front of the sacrum; and (2) a specimen in which the superior longitudinal sinus divided into two, one and three-quarter inches above the internal occipital protuberance; the straight sinus divided in a similar fashion; the two branches of each ran out and united nearly two inches from the protuberance to form the lateral sinuses.

Collective Investigation Reports.

The Reports of the Collective Investigation from the Anatomical Departments of Trinity College and the Catholic University were read:—

(*a*) On the Level of the Termination of the Spinal Cord,

MR. J. H. MOORHEAD reported:—The most frequent level of termination of the spinal cord in both sexes taken together is the lower 3rd of the 1st lumbar vertebra. In male subjects it most usually ends on the 1st lumbar vertebra, and in females on the 2nd lumbar vertebra. The cord has a distinct tendency to terminate at a lower level in females than in males. In 60 per cent. of all cases the point of termination is included within a space of 2½ cms. whose centre is the middle of the disc between the 1st and 2nd lumbar vertebræ. The point of ending is slightly, if at all, affected by spinal curves or by height in individual subjects. Length of the cord in males is 45 cms., and in females, 43·7 cms. Relatively to the *average* length of the spinal column, the cord is *slightly longer* in females than in males.

MR. J. A. ROUGHAN reported that, out of nine subjects examined by him, in four the cord ended at the disc between the 1st and 2nd lumbar vertebræ; in two at the junction of the middle and lower 3rds of the 1st lumbar; in two at junction of the middle and lower 3rds of the 2nd lumbar; and in one case at lower end of second lumbar vertebræ.

(*b*) Regarding the Level of Bifurcation of the Abdominal Aorta,

MR. PEERS PEERS SMITH reported:—The place most frequently chosen for bifurcation was the lower 3rd of the 4th lumbar vertebra (75 per cent.). The middle third of the 4th lumbar and the intervertebral disc between the 4th and 5th lumbar vertebræ come next in point of frequency; then the upper third of the 4th lumbar; followed by the upper 3rd of the 5th lumbar; and finally, the intervertebral disc between the 3rd and 4th lumbar vertebræ. The taller the male subject, the greater was the tendency to bifurcation at a lower level; but in females the tendency, if any, was in the opposite direction. Abnormalities with regard to the branches of the aorta, and also curvatures of the vertebral column, had no influence on the level of bifurcation.

Mr. Farnan reported that he had examined twenty-two cases. The aorta divided in fourteen on the body of the 4th lumbar vertebra, slightly to the left of the middle line; of the remaining eight, seven were opposite the disc between the 4th and 5th lumbar, and one opposite that between the 3rd and 4th. In the cases in which division took place on the body of the fourth lumbar, four were above, one at, and five below, the middle.

(*c*) On the Presence of the Palmaris Longus, Plantaris, and Pyramidalis,

Mr. W. Shackleton reported that, in 78 arms examined, the palmaris was present in 88·45 per cent.; it was present in 92 per cent. of right arms, and only in 85 per cent. of left arms. Twice the muscle was double, and in one of these one tendon was inserted into the pisiform bone; a similar insertion was found in another single muscle. In 73 legs the plantaris was present in 93·15 per cent., each side contributing an equal proportion. The pyramidalis was examined in 43 subjects. It was found equally developed on both sides, and was present in 60·47 per cent. In males, it was present in 63 per cent.; in females, only in 58·4 per cent.

Dr. Fagan reported that, in 34 arms examined, the palmaris was present in 88·82 per cent.—viz., in 94 per cent. of right, and only in 82·3 per cent. of left arms; it was absent on both sides in one. In 34 legs examined, the plantaris was present in 97 per cent.—viz., in 100 per cent. of right legs, and in 94·1 per cent. of left limbs. The pyramidalis was examined in 14 subjects. It was present on both sides in 85·7, present on one side in 7·2, and absent on both sides in 7·2 per cent. of cases. It was present on both sides in 9 males; in 5 females it was absent once, and absent on one side once.

The Collective Investigation Reports having been read,

Dr. Cunningham proposed a vote of thanks to the several gentlemen who had so laboriously and carefully investigated the different subjects. He said that he was surprised to learn from the results they had obtained that the usual description was in the majority of cases correct. As regards the point of termination of the spinal cord, he was not astonished that there should be a difference in the two sexes. That the cord ended at a lower level in the female was simply an example of a nearer approach to an infantile type in the female than in the male.

The **President** said he felt sure that he expressed the opinion of all the members present when he said that they were greatly indebted to the gentlemen who had investigated the subjects. He thought that to settle the question as to the exact point where the nervous matter of the spinal cord ended would be an exceedingly difficult matter, and would require the aid of the microscope, as nervous matter was continued down the conus medullaris for a considerable distance.

Dr. Birmingham had much pleasure in seconding Dr. Cunningham's proposal, and added a warm expression of thanks to the investigators.

The **President** put the vote from the chair, and it was carried by acclamation.

Complete Transpositions of the Viscera.

Mr. Fraser made a communication on this subject, exhibiting a specimen, which he had obtained in the dissecting-room during the course of the winter session. The abnormal condition occurred in a female subject, about forty-five years of age, of low stature—height, only 4 ft. 2 in. No other details could be obtained. He pointed out that the condition must be a very rare one; that he had now an experience extending over at least 1,400 bodies, and this was the first example he had met with.

The transposition was complete, not only in regard to the viscera, but also to the blood-vessels and to the thoracic duct.

In respect to its cause, he considered the subject to have been one of twins from a single egg, in support of which opinion he showed a double monstrosity where dichotomy was complete except in the thoracic region (thoracopagus), and in which the left of the two fœtuses had transposition of the viscera—a fact already noticed by Förster ("Missbildungen der Menschen," Jena, 1865, page 136), and that the same cause had been suggested by Mr. Morrant Baker to Mr. Bland Sutton, as stated in his work on "Evolution and Disease," London, 1890, page 132.

Dr. Parsons said that he had seen a patient in one of the Vienna clinics in whom the liver, heart, and spleen were transposed. She was a rather well-developed woman, and was kept in hospital more as a curiosity than on account of any ailment. When he saw her she was suffering from an attack of bronchitis.

Anatomy of the Ear Muscles.

Dr. Birmingham read a preliminary note on the above. [It will be found at page 288.]

Single and Double Monstrosities.

Mr. Fraser also made a communication on various forms of Single and Double Monstrosities, especially on Anencephalic and Amyelic Nervous Systems.

To illustrate his remarks, he exhibited a fowl with supernumerary legs formed by the adjacent halves of two pelves; a double human monster with anterior and posterior dichotomy; a number of anencephali at different ages, some of these being amyelic, while the remainder were in possession of the spinal cord. A peripheral nervous system was found in all the specimens, with well-developed ganglia on the posterior roots.

What had struck him in particular was the presence of a fully-developed striated muscular system in all the specimens in the absence of the ventral cell in the central nervous system, as it was a well-established fact that alteration in the neutral cells of the fully-formed cord led to atrophy of the muscles, especially in children; thus showing that the *rôle* of the ventral cell in the embryonic cord must be a very different one to that generally attributed to it in the fully-formed cord.

He had dissected carefully the reddish mass lying on the cranial base called the substantia-medullo-vasculosa of Recklinghausen, and had found evidence therein of the early formation of the brain—in short, that the central nervous system in all of the specimens had been developed at an early period, until a date a least after the formation of the sensory ganglia from the medullary ridge and adjacent ecto-derm. Then development had ceased in the central nervous tube from some pathological cause; but there was clear evidence that the development of the peripheral nervous system, once started from the closing lips of the central tube, can go on quite independent of it, as was shown by its presence in a well-developed condition, and this in the absence of any apparent central nervous system.

The full significance of these facts for the independence of the peripheral nervous system, after a certain stage, and for the presence of fully-developed muscular and other systems, had not yet been fully appreciated.

The Section then adjourned.

CHILDREN SMOKERS.

THE *Journal de Santé* states that young smokers are more susceptible than adults to the ill effects of nicotin. Of 38 boys, from 9 to 15 years of age, who were in the habit of smoking, 27 presented distinct symptoms of nicotin intoxication, as reported by a French physician who has taken up the subject. In 22 cases there were irregularities of the circulation, weak digestion, languor, and predilection for strong drink. In 3 there was cardiac lesion, in 8 deterioration of the blood, in 12 frequent epistaxis, 10 suffered from insomnia, and 4 had ulcerations of the mouth.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.R.C.P.I.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, October 6, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Sept. 15.	Sept. 22.	Sept. 29.	Oct. 6.		Sept. 15.	Sept. 22.	Sept. 29.	Oct. 6.
Armagh -	14·0	14·0	7·0	14·0	Limerick -	37·9	16·8	19·6	22·5
Belfast -	19·4	15·7	19·6	19·8	Lisburn -	46·8	34·1	29·8	21·3
Cork -	19·4	27·0	24·9	19·4	Londonderry	15·7	20·4	20·4	25·1
Drogheda	4·4	13·2	26·4	35·1	Lurgan -	4·6	9·1	22·8	27·4
Dublin -	20·9	19·7	19·8	22·5	Newry -	8·1	12·1	8·1	8·1
Dundalk -	12·6	0·0	54·5	12·6	Sligo -	20·3	5·1	10·2	25·4
Galway -	18·9	37·8	26·4	37·8	Waterford -	17·5	12·5	20·0	12·5
Kilkenny	23·6	9·4	33·0	0·0	Wexford -	31·6	36·1	18·1	18·1

In the week ending Saturday, September 15, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 14·9), was equal to an average annual death-rate of 15·9 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·5 per 1,000. In Glasgow the rate was 15·4, and in Edinburgh it was 17·1.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 20·4 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·5 per 1,000, the rates varying from 0·0 in eight of the districts to 34·1 in Lisburn—the 11 deaths from all causes registered in that district comprising 5 from measles and 3 from scarlatina. Among the 100 deaths from all causes registered in Belfast are 1 from measles, 2 from scarlatina, 1 from whooping-cough, 1 from diphtheria, 1 from simple continued fever, 2 from enteric fever, and 5 from diarrhœa. The 28 deaths in Cork comprise 2 from enteric fever. The 27 deaths in Limerick comprise 2 from scarlatina.

In the Dublin Registration District the registered births amounted to 236—126 boys and 110 girls; and the registered deaths to 146—73 males and 73 females.

The deaths, which are 21 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 21·8 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 20·9 per 1,000. During the first thirty-seven weeks of the current year the death-rate averaged 25·5, and was 2·2 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 17, being 18 below the average for the corresponding week of the last ten years, and 4 under the number for the previous week. They comprise 2 from small-pox, 3 from scarlet fever (scarlatina), 2 from enteric fever, 6 from diarrhœa, and 2 from dysentery.

The deaths from small-pox are those of a woman aged 42 years, vaccinated, and of a girl aged 4 years, unvaccinated.

Twelve cases of small-pox were admitted to hospital, being 4 under the number of admissions for each of the two preceding weeks: 16 small-pox patients were discharged, 1 patient died, and 80 patients remained under treatment in hospital on Saturday, being 5 under the number in hospital at the end of the previous week.

The number of cases of enteric fever admitted to hospital was 16, being an increase of 3 as compared with the admissions for the preceding week: 13 enteric fever patients were discharged, 2 died, and 69 remained under treatment on Saturday, being 1 over the number in hospital at the close of the preceding week.

The hospital admissions included, also, 18 cases of scarlatina, as against 19 in the preceding week: 19 scarlatina patients were discharged, 1 died, and 75 remained under treatment on Saturday, being 2 under the number in hospital on that day week.

Deaths from diseases of the respiratory system, which had risen from 14 for the week ended September 1 to 26 the following week, fell to 18, or 1 under the average for the corresponding week of the last ten years. The 18 deaths consist of 8 from bronchitis, 7 from pneumonia or inflammation of the lungs, 1 from croup, and 2 from pleurisy.

In the week ending Saturday, September 22, the mortality in thirty-three large English towns, including London (in which the rate was 14·5), was equal to an average annual death-rate of 15·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 14·9 per 1,000. In Glasgow the rate was 15·7, and in Edinburgh it was 13·1.

The average annual death-rate in the sixteen principal town districts of Ireland was 18·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 1·7 per 1,000, the rates varying from 0·0 in twelve of the districts to 8·5 per 1,000 in Lisburn, the 8 deaths from all causes registered in that district comprising 2 from measles. Among the 81 deaths from all causes registered in Belfast are 1 from measles, 1 from diphtheria, 3 from enteric fever, and 6 from diarrhœa.

In the Dublin Registration District the registered births amounted to 184—92 boys and 92 girls; and the registered deaths to 137—70 males and 67 females.

The deaths, which are 26 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 20·4 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 19·7 per 1,000. During the first thirty-eight weeks of the current year the death-rate averaged 25·3, and was 2·3 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 21, being 4 over the number for the preceding week, but 13 under the average for the 38th week of the last ten years. The 21 deaths comprise 1 from scarlet fever (scarlatina), 2 from whooping-cough, 7 from enteric fever, 6 from diarrhœa, and 1 from erysipelas.

Thirteen cases of small-pox were admitted to hospital, being 1 over the admissions in the preceding week, but 3 under the number for the week ended September 8. Twenty-four small-pox patients were discharged, 1 patient died, and 68 cases remained under treatment on Saturday, being 12 under the number in hospital at the close of the preceding week. It appears from the hospital return that the death from this disease (which had not been registered up to the close of the week) was that of an "infant 23 days old, vaccinated after infection."

Twenty-one cases of enteric fever were admitted to hospital, against 16 in the preceding week: 6 patients were discharged, 5 died, and 79 remained under treatment on Saturday, being 10 over the number in hospital on the previous Saturday.

Only 6 cases of scarlatina were admitted to hospital, against 18 cases in the preceding week, and 19 in the week ended September 8: 73 scarlatina patients remained under treatment on Saturday, being 2 under the number in hospital at the close of the preceding week.

Twenty-three deaths from diseases of the respiratory system were registered, being 6 in excess of the average for the corresponding week of the last ten years, and 5 over the number for the week ended September 15. They comprise 18 from bronchitis.

In the week ending Saturday, September 29, the mortality in thirty-three large English towns, including London (in which the rate was 15·3), was equal to an average annual death-rate of 16·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·1 per 1,000. In Glasgow the rate was 17·9, and in Edinburgh it was 11·5.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 20·8 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·6 per 1,000, the rates varying from 0·0 in seven of the districts to 8·5 in Lisburn—the 7 deaths from all causes registered in that district comprising 2 more from measles. Among the 101 deaths from all causes registered in Belfast are 1 from measles, 3 from whooping-cough, 5 from enteric fever, and 6 from diarrhœa. The 86 deaths in Cork comprise 1 from scarlatina, 3 from whooping-cough, and 2 from diarrhœa.

In the Dublin Registration District the registered births amounted to 188—100 boys and 88 girls; and the registered deaths to 144—64 males and 80 females.

The deaths, which are 26 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 21·5 in every 1,000 of the population. Omitting the deaths (numbering 11) of persons admitted into public institutions from localities outside the district, the rate was 19·8 per 1,000. During the first thirty-nine weeks of the current year the death-rate averaged 25·2, and was 2·3 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 17, being 14 under the average for the corresponding week of the last ten years, and 4 under the number for the week ended September 22. The 17 deaths comprise 2 from small-pox, 2 from whooping-cough, 4 from enteric fever, 7 from diarrhœa, and 1 from dysentery. The deaths from small-pox are those of two unvaccinated children, one 23 days and the other 4 years old.

Nineteen cases of small-pox were admitted to hospital, being 6 over the admissions for the preceding week: 22 small-pox patients were discharged, 1 patient died, and 64 remained under treatment on Saturday, being 4 under the number in hospital at the close of the preceding week.

Twenty-two cases of enteric fever were admitted to hospital, being one over the admissions for the preceding week: 12 patients were discharged and 89 remained under treatment on Saturday, being 10 over the number in hospital on that day week.

The hospital admissions included, also, 8 cases of scarlatina, against 6 in the preceding week and 18 in the week ended September 15. Fourteen patients were discharged, and 67 remained under treatment on Saturday, being 6 under the number in hospital on the preceding Saturday.

The number of deaths from diseases of the respiratory system registered was 20, being 1 over the number for the corresponding week of the last ten years, but 3 under the number for the week ended September 22. The 20 deaths comprise 10 from bronchitis, 6 from pneumonia or inflammation of the lungs, and 2 from pleurisy.

In the week ending Saturday, October 6, the mortality in thirty-three large English towns, including London (in which the rate was 15·4), was equal to an average annual death-rate of 16·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 15·9 per 1,000. In Glasgow the rate was 15·4, and in Edinburgh it was 17·5.

The average annual death-rate in the sixteen principal town districts of Ireland was 21·0 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·6 per 1,000, the rates varying from 0·0 in six of the districts to 12·8 in Lisburn the 5 deaths from all causes registered in that district comprising 3 more from measles. Among the 102 deaths from all causes registered in Belfast are 3 from measles, 1 from scarlatina, 1 from whooping-cough, 1 from diphtheria, 1 from simple-continued fever, 2 from enteric fever, and 4 from diarrhœa. The 16 deaths in Limerick comprise 3 from scarlatina, 1 from whooping-cough and 2 from diarrhœa. The 10 deaths in Galway comprise 1 from measles and 1 from typhus.

In the Dublin Registration District the registered births amounted to 161—80 boys and 81 girls; and the registered deaths to 158—84 males and 74 females.

The deaths, which are 3 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·6 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 22·5 per 1,000. During the first forty weeks of the current year the death-rate averaged 25·2, and was 2·2 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 22, being 5 over the number for the preceding week, but 7 under the average for the 40th week of the last ten years. The 22 deaths comprise 4 from small-pox (1 vaccinated person and 3 unvaccinated), 1 from scarlet fever (scarlatina), 1 from typhus, 1 from diphtheria, 1 from enteric fever, 5 from diarrhœa, 4 from dysentery, 2 (both of which occurred in the

Richmond District Lunatic Asylum) from beri-beri, and one from erysipelas.

Only eight cases of small-pox were admitted to hospital, being 11 under the admissions for the preceding week and 5 under the number for the week ended September 22. Six small-pox patients were discharged, 4 died, and 62 remained under treatment on Saturday, being 2 under the number in hospital at the close of the preceding week.

The number of cases of enteric fever admitted to hospital was 18, being 4 under the admissions for the preceding week: 9 patients were discharged, 1 patient died, and 97 remained under treatment on Saturday, being 8 over the number in hospital on Saturday, September 29.

The hospital admissions for the week included, also, 10 cases of scarlatina, against 8 in the preceding week: 11 patients were discharged and 66 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

Twenty-five deaths from diseases of the respiratory system were registered, being 5 in excess of the average for the corresponding week of the last ten years, and also 5 over the number for the week ended September 29. They comprise 16 from bronchitis and 6 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15 *W., for the Month of September,* 1894.

Mean Height of Barometer, - - -	30·213 inches.
Maximal Height of Barometer (on 30th, at 9 a.m.),	30·509 „
Minimal Height of Barometer (on 22nd–23rd, at midnight), - - - - -	29·768 „
Mean Dry-bulb Temperature, - - -	52·9°.
Mean Wet-bulb Temperature, - - -	50·9°.
Mean Dew-point Temperature, - - -	49·0°.
Mean Elastic Force (Tension) of Aqueous Vapour, -	·348 inch.
Mean Humidity, - - - - - -	87·3 per cent.
Highest Temperature in Shade (on 10th), - -	63·9°.
Lowest Temperature in Shade (on 28th), - -	39·8°.
Lowest Temperature on Grass (Radiation) (on 28th),	33·2°.
Mean Amount of Cloud, - - - -	60·0 per cent.
Rainfall (on 8 days), - - - -	·442 inch.
Greatest Daily Rainfall (on 7th), - - -	·156 inch.
General Directions of Wind, - - -	N., E.N.E., E.

Remarks.

As in 1893, so in 1894, September proved a favourable month throughout. The most remarkable feature in the month was the tendency to the formation of anticyclones over Ireland. These high pressure systems produced quiet, cool weather, with an overwhelming prevalence of northerly to easterly winds, and a very scanty and infrequent rainfall. In England, as usually happens with N., N.E., and E. winds, the precipitation was much greater, and heavy rainfalls occurred locally—for example, at Hereford, where 2½ inches fell between the 23rd and 25th, and at High Wycombe, Bucks, where 2¾ inches fell in an hour and a half on the 23rd. The amount of cloud was very large for September, which is often characterised by clear skies. For this reason the day temperatures were low, while no very low night temperatures were recorded—the lowest of all was 30° at Loughborough on the 28th and 29th.

In Dublin the arithmetical mean temperature (53·8°) was exactly 2° below the average (55·8°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 52·9°. In the twenty-nine years ending with 1893, September was coldest in 1886 and in 1882 (M. T. = 53·0°), and warmest in 1865 (M. T. = 61·4°). In 1880, the M. T. was as high as 58·6°; in 1879 (the "cold year") it was 54·3°; in 1887, 54·0°; in 1888, 54·4°; in 1889, 55·8°, or exactly the average; in 1890 it was as high as 59·6°; in 1891, it was 57·6°; in 1892, 54·5°; and in 1893, 55·9°. So warm a September as that of 1890 had not occurred for a quarter of a century.

The mean height of the barometer was 30·213 inches, or 0·303 inch above the corrected average value for September—namely, 29·910 inches. The mercury rose to 30·509 inches at 9 a.m. of the 30th, and fell to 29·768 inches at midnight of the 22nd–23rd. The observed range of atmospheric pressure was, therefore, ·741 inch—that is, a little less than three quarters of an inch.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 52·9°, or exactly 4° below the value for August, 1894. Using the formula, *Mean Temp.* = *Min.* + (*max.* — *min.* × ·476), the mean temperature was 53·5°, or exactly 2° below the average mean temperature for September, calculated in the same way, in the twenty-five years, 1865–89 inclusive (55·5°). The arithmetical mean of the maximal and minimal readings was 53·8°, compared with a twenty-five years' average of 55·8°. On the 10th the thermometer in the screen rose to 63·9°—wind, W.; on the 28th the temperature fell to 39·8°—wind, E. The minimum on the grass was 33·2° also on the 28th.

The rainfall was only ·442 inch, distributed over 8 days—the rainfall and rainy days were thus considerably below the average. The average rainfall for September in the twenty-five years, 1865–89 inclusive, was

2·176 inches, and the average number of rainy days was 14·7. In 1871 the rainfall was very large—4·048 inches on, however, only 13 days. On the other hand, in 1865 only ·056 inch was measured on but 3 days. In 1888, the rainfall was only ·728 inch on 10 days; in 1889, 1·043 inches fell on 13 days; in 1890, 2·469 inches on 14 days; in 1891, 2·132 inches on 18 days; in 1892, 2·631 inches on 19 days; and in 1893, ·729 inch on 14 days.

High winds were noted on only two days, but attained the force of a gale on no occasion in Dublin. Lightning was seen on the 4th. The atmosphere was foggy on the 12th, 13th, 14th, 29th, and 30th.

The month opened with an irregularly-shaped area of high atmospheric pressure lying over Great Britain and Ireland, where the weather was mild and fine, although rather cloudy. Light variable winds were prevalent in nearly all parts of the United Kingdom.

During the week ended Saturday, the 8th, favourable autumnal weather prevailed in Ireland, but in England conditions were less settled and heavy thunder and hail showers by day succeeded a series of clear, cold, almost frosty nights. On parts of the east coast of Ireland similar conditions in a minor degree were experienced on some days. Sunday found an anticyclone off the north of Ireland and to the westward of Scotland, while a shallow but deepening depression was advancing from the Bay of Biscay to the English Channel. This system caused thunderstorms and heavy rains in the South of England—·78 inch of rain falling at Hurst Castle. In Dublin this day proved fine with the lower clouds and wind coming from N.E., while lofty cirrus cleared off from W.N.W. During the next four days an area of high pressure lay over Ireland, accompanied by northerly winds, cold nights, and fair to showery days. But the showers were local, and much bright sunshine was enjoyed. On Thursday, a singularly heavy but very partial shower fell over the south-eastern district of Dublin. At this station, ·075 inch of rain fell in a few minutes. On Friday, a depression, secondary to a more extensive and serious disturbance over Scandinavia, advanced over Ireland, causing a considerable rainfall at night. At Eastbourne 2 inches fell in 7 hours, including ·5 inch in 5 minutes at 7 30 a.m. of Saturday. As the depression passed south-eastwards, the wind drew again into N., with a clearing sky and dry bracing atmosphere. Inland very low temperatures were recorded this week—for example, the minima at Parsonstown were 53°, 39°, 38°, 38°, 38°, 37°, and 40° respectively. In Dublin the mean atmospheric pressure was 30·153 inches, the barometer ranging only from 30·235 inches at 9 a.m. of Thursday (wind, N.) to 30·019 inches at 9 p.m. of Friday (wind, W.). The corrected mean temperature was 52·1°. The mean dry bulb readings at 9 a.m. and 9 p.m. were 51·3°. On Sunday the screened thermometers rose to 61·5°. On Thursday they fell to 42·0°. The rainfall was ·241 inch on three days, ·156 inch falling on Friday night. The prevailing winds were northerly (N.E. to N.W.). Hail fell on Tuesday and lightning was seen during the evening of the same day.

So far as Ireland is concerned, the week ended Saturday, the 15th, was a quiet, uneventful period, fine, dry weather being everywhere prevalent, except on the extreme N. and N.W. coasts, where rain fell in small quantities from time to time. An area of high pressure overlay this country throughout the week, causing the fine weather but at the same time much haze or fog and at times cloud. Atmospheric pressure was highest on Sunday evening, when the barometer read 30·53 inches at Parsonstown—at 8 a.m. next day, the value 30·51 inches was recorded at that station and also at Valentia Island and Roche's Point. In the south-east of England, the weather was disturbed on Sunday by a depression which was dispersing over Germany. At this time it was particularly fine in Ireland, where the previous night had been clear and very sharp—the screened thermometers having fallen to 34° at Parsonstown, 40° at Valentia, and 41° even in Dublin. On Tuesday and Wednesday a vast and deep depression swept across northern Europe in an easterly direction. This disturbance caused heavy rains and strong W. to N.W. gales at several Scandinavian stations. Unsettled weather also spread to Scotland in a less degree. To the extreme south-west of Europe also areas of low atmospheric pressure brought violent thunder and rainstorms in the course of the week. At 8 a.m. of Tuesday the barometer ranged from 30·44 inches in Cork and Kerry to 29·20 inches at Bodö (Norway) and 29·93 inches at Lisbon. In Dublin the mean height of the barometer was 30·438 inches, the extremes being—highest, 30·483 inches at 9 a.m. of Monday (wind, W.) and lowest 30·374 inches at 9 a.m. of Tuesday (wind, W. by N.). The corrected mean temperature was 54·0°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 53·5°. On Sunday and Monday the lowest shade temperature was 41·0°; on Monday the screened thermometers rose to 63·9°. The prevailing wind was northerly, but the air was often calm, leading to the formation of fog. There was no measurable rainfall.

The week ended Saturday, the 22nd, was again a period of fine, quiet, dry, but cloudy, hazy weather. Towards the end of the week signs were not wanting of a break-up of the anticyclonic system which had so long been swaying to and fro over North-western Europe. Sunday was a beautiful day after a cloudy, hazy morning. The sun shone brightly throughout the afternoon, and calms or light variable airs completed the summerlike character of the day. A dull quiet period followed, with light to moderate S.E. and E. winds. On Wednesday forenoon some rain fell in Dublin in frequent showers—the measurement was ·039 inch. In the course of the following night ·018 inch of rain fell at Greystones, Co. Wicklow. The barometer was at this time falling fitfully and uniformly, but on Friday the decrease of pressure became more rapid and more serious, as a rain-bearing somewhat complex area of low pressure pushed northwards from the Bay of Biscay. This system caused rain in the English Channel, the S.W. of England, and the S. of Ireland, thunder and lightning occurring at Jersey, and lightning being seen from the Scilly Islands and Prawle Point. On Saturday there was a further extension of broken weather, and the barometer had fallen to 29·60 inches in the Scilly Isles. In Dublin the mean atmospheric pressure was 30·142 inches, the barometer falling gradually from 30·392 inches at 9 a.m. of Sunday (wind, S.E.) to 29·784 inches at 9 p.m. of Saturday (wind, E.). The corrected mean temperature was 56·2°. The mean dry bulb temperature at 9 a.m. and 9 p.m. was 55·2°. On Sunday the screened thermometers rose to 61·4°, on Thursday they fell to 49·8°. Easterly and northerly winds prevailed. The rainfall was ·069 inch on two days, ·039 inch being registered on Wednesday and ·030 inch on Saturday.

During the week ended Saturday, the 29th, the weather, although at first dull and damp, was generally favourable. In the S.W., S., and S.E. of England it was very broken until Thursday. These opposite results were due to the appearance of an atmospheric depression over the mouth of the English Channel at the beginning of the week. The system remained almost stationary until Tuesday, when it travelled up the English Channel, arriving at the mouth of the Elbe on Wednesday morning. As the disturbance pursued this east-north-easterly course, it brought E. and N.E. to N. winds, great gloom, and heavy rains to the English districts above mentioned, and also to Holland and North Germany. On Wednesday morning the rain-measurement was ·66 inch at Yarmouth, ·98 inch at the Helder, and 1·05 inch at Cambridge. The primary depression was followed by one or two secondaries, which kept the weather in an unsettled, showery state in the neighbourhood of the English Channel until Thursday. In Ireland, after a gloomy, damp spell, the weather became beautiful—frosty, clear, calm nights giving place to sunny, autumnal days with moderate and bracing easterly winds. On Wednesday night the thermometer in the screen fell to 33° at Parsonstown, and to 34° at Loughborough (Leicestershire). At the latter station the minimum on Thursday night was 30°. Wet snow fell on the morning of this day at Haparanda on the Gulf of Bothnia. A sudden rise of temperature took place in the South of Ireland on Friday. Saturday was fair and bright, and in the evening calm and sharp, with fog in the city. In Dublin the mean height of the barometer was 30·085 inches, pressure ranging from 29·768 inches early on Sunday morning (wind, N.E.) to 30·470 inches at 9 p.m. of Saturday (wind, calm). The corrected mean temperature was 52·0°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 51·4°. On Tuesday the thermometer rose to

58·9° in the shade; on Friday it fell to 39·8°. The rainfall was ·132 inch on three days, ·108 inch being measured on Tuesday. The prevailing winds were N.E. and E.

Sunday, the 30th, was at first calm, with heavy dew and some smoke-fog in Dublin. The weather afterwards became brilliant.

The rainfall in Dublin during the nine months ending September 30th amounted to 22·301 inches on 156 days, compared with 10·968 inches on 112 days during the same period in 1887, 17·992 inches on 131 days in 1888, 19·936 inches on 147 days in 1889, 20·855 inches on 151 days in 1890, 18·020 inches on 135 days in 1891, 19·910 inches on 150 days in 1892, 15·108 inches on 122 days in 1893, and a twenty-five years' average of 19·734 inches on 142·8 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in September, 1894, was ·690 inch distributed over 6 days. Of this quantity ·300 inch fell on the 7th, and ·230 inch on the 22nd. At that station the rainfall since January 1, 1894, has been 25·896 inches on 137 days, compared with 23·883 inches on 125 days in the same nine months of 1892, and 17·091 inches on 118 days in 1893.

At Cloneevin, Killiney, Co. Dublin, the rainfall in August, 1894, was 4·02 inches on 17 days (the maximal fall in 24 hours being 1·75 inches on the 25th), compared with a nine years' average of 2·794 inches on 15·7 days. In September, 1894, only ·70 inch fell at Cloneevin on 5 days. The maximal fall in 24 hours was ·84 inch on the 7th. On an average of nine years the September rainfall at this station has been 1·622 inches on 12·3 days. Since January 1, 1894, 22·92 inches of rain have fallen at Cloneevin on 150 days.

MATTEISM IN THE FRENCH LAW COURTS.

We learn from the *Gazette Médicale de Paris* that the Court of Grenoble dismissed a case against the parish priest of Mens, who, having no diploma, doctors his flock with Count Mattei's preparations. It was ruled that to order these medicaments, of unknown composition, is not "to act as a physician." If the *curé* had prescribed out of the Pharmacopœia, he would have incurred legal penalties. The court declared that Mattei's Pills are "known to all, sold by druggists, preferred by many patients, and not prescribed by physicians solely because they regard them as absolutely inert, not because they consider them dangerous or injurious." Appeal against the decision of the lower court was notified at once.

THE APOLLINARIS COMPANY, LIMITED.

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PERISCOPE.

SENSIBLE TEMPERATURES.

On June 1, 1894, Mr. Mark W. Harrington, Chief of the Weather Bureau, U.S. Department of Agriculture, Washington, D.C., read a very instructive and suggestive paper on this subject before the American Climatological Association. It was published in the *International Medical Magazine* for August, 1894 (Vol. III., No. 7, page 481), from which we reproduce the following abstract:—By "sensible" temperature is meant that which is felt at the surface of the skin, especially where the skin is exposed, as on the face and hands. This may be a very different temperature from that of direct insolation or from that of shade—the two temperatures most discussed by meteorologists. On sensible temperature depends our sense of comfort in hot weather. They are therefore of importance to every one, but of especial importance to invalids and to their medical advisers. The sensible temperatures depend on evaporation, and when evaporation takes place they are invariably lower than the shade-temperatures given in meteorological tables. To change a definite quantity of water from the liquid to the vapour state requires the utilisation of a definite quantity of that form of energy which we call heat. On evaporation this heat changes to other forms of energy, it is no longer sensible, and a feeling of coolness results from its change. Thus is caused a reduction of temperature at the spot where the evaporation takes place, and as long as evaporation continues the surface from which it takes place is cooler than the general air temperature. In actual practice the temperature of evaporation is taken by means of a wet-bulb thermometer—a thermometer the bulb of which is always kept moist and consequently has evaporation constantly taking place on its surface. The thermometer used for this purpose is kept in the shade in a box which permits free ventilation while it protects it from direct currents of air. In this paper, when not otherwise stated, by temperature of evaporation is meant that obtained by such a thermometer thus protected—that is, in the shade and protected from the wind. The reduction of temperature caused by evaporation depends on the rapidity with which evaporation takes place, and this in turn on the amount of moisture already in the air. In general, when the air is saturated with moisture (in other words, when the shade-temperature and the dew-point are the same) there is no evaporation and the reduction is zero. When the air is super-saturated—that is, when the shade-temperature is lower than the dew-point—then condensation the reverse of evaporation takes place; heat is released, and, instead of a reduction, we have an addition to the temperature. But when the air is not saturated the shade-temperature is above the dew-point and a reduction of temperature takes place, the amount of this reduction depending on the depression of the dew-point below the shade-temperature. The greater the depression of the dew-point, the less the relative humidity, the drier the air, the more rapid the evaporation, and the greater the reduction of temperature caused by evaporation. The relations between shade-temperature, the dew-point and reduction of temperature are expressed by a simple empirical equation and are given in meteorological tables. The amount of this reduction, or the lowering of the shade-temperature, will be greatest when the air is driest, least when the air is most moist. It appears that in arid regions the reduction may make hot weather not only endurable but even agreeable and refreshing. What happens in arid or semi-arid regions periodically may happen in other regions with a centre of high pressure—which in summer is hot and dry—or with a more enduring drought such as may occur at any season. The observations available do not permit of a comparison hour by hour of the reduction of temperature by evaporation, because no hourly observations involving moisture are taken by the Weather Bureau. Very simple considerations, however, will show that the reduction is greatest in the hottest part of the day and least in the coldest. Similarly the reduction is greatest in the hottest part of the year and least in the coldest. To obtain the beneficial effects of the reduction of temperature by evaporation the shade must be sought and the direct sun's rays avoided. The effects may be heightened by a natural or artificial breeze or wind, and for parts of the body covered by clothing they may be obtained by adapting the clothing to the free passage of air and moisture. For hot weather and in the shade the colour of the clothing is of less consequence than its texture, together with sufficient looseness to permit of the free access of air. The reduction of temperature by evaporation may be increased by many devices for making an artificial breeze (as the fan or the punka), and by offering more water for evaporation, as by a fountain or the dripping screens used in some parts of India.

THE LATE PROFESSOR HELMHOLTZ.

We extract from the daily newspapers the following interesting obituary notice of Professor Helmholtz:—Hermann Ludwig Ferdinand Helmholtz, who died on Saturday afternoon (September 8, 1894) at Charlottenburg, without having recovered consciousness since his last attack of apoplexy, was born August 31, 1821, at Potsdam, where his father was a professor in the Gymnasium, his mother, Caroline Penn, being an English woman. The family was not wealthy, and the future man of science was obliged to prosecute his studies as best he might while discharging the duties of an army surgeon. When 27 years old he was appointed assistant in the Anatomical Museum of Berlin; and in the following year he became Professor of Physiology at Königsberg. In 1856 he went to Bonn as Professor of Anatomy and Physiology, and he removed in 1859 to a similar position in the University of Heidelberg, where he did a large part of his physiological work. Twelve years later he was made Professor of Natural Philosophy in the University of Berlin, a post which he held until his death. Helmholtz was accustomed to refer to his medical education as having given him valuable insight into natural laws, and having laid the foundation for all that he subsequently did. Yet for the possession of a rude and imperfect microscope he was indebted during his career as an army surgeon to an attack of fever, his stay in the hospital permitting the accumulation of his salary. It was while performing the routine duties of this post that he produced his classic work on the "Conservation of Energy," a short essay which has done more than any but scientific workers can fully appreciate to stimulate the researches which have transformed modern science. For it is not only a statement of scientific fact, but a critique of all work in physics. The principle so luminously and forcibly set forth by Helmholtz has made itself felt as a co-ordinating and harmonising force over the entire field of scientific research. That, as a matter of strict chronology he was to some extent anticipated by Joule and Mayer, hardly detracts from the greatness of his achievement. Helmholtz brought to his physiological work an unrivalled grasp of physical laws. Indeed, the special note of this great master was that he was an accomplished specialist in many different fields, and possessed the power of combining sciences for the attainment of results not attainable by any other means. His two great works on "Physiological Optics" and the "Sensations of Tone" exhibit him in the character at once of physicist, physiologist, and mathematician. When he turned his attention to optics the knowledge at the disposal of the oculist was extremely limited, at all events on the physical side, nor was its practical application to the complex structure of the eye by any means well understood. By the invention of the ophthalmoscope Helmholtz substituted direct observation for conjecture, and by his analysis of the physical principles involved he raised observation to the higher level of science. At the same time he threw a new light upon the whole conditions of sensation and of voluntary motion in general. The same comprehensive yet penetrating analysis was brought to bear upon the sensations of tone, while the foundations were laid for the researches into the minute mechanism of the ear, which are among the most intricate and beautiful physiological works of the day. In acoustics, as in optics, the work of Helmholtz ranges from mechanics on one side to psychology on the other. In dealing with the vibrations which form the physical basis of sound and light he wielded all the resources of the physical investigator; in working out the operation of these waves upon the sensitive structures of eye and ear the most refined physiological methods were brought into play; while in finally dealing with the translation of these physical and physiological facts into consciousness he showed himself an acute and accomplished metaphysician. In every department of work at all closely related to his central studies Helmholtz has given evidence of his extraordinary fertility and strenuous energy. His scientific papers upon a wide range of physiological, chemical, physical, mechanical, and mathematical questions are invariably marked by the greatest breadth of view and the most direct insight into what is essential. In the catalogue of the Royal Society he is credited with more than a hundred papers of the highest importance, while of minor work in the form of popular lectures he was also prolific. His more recent researches upon vortices, and the mechanical conditions governing the movements and distribution of the atmosphere show his intellectual vigour unimpaired by advancing years. He has long occupied an unquestioned position and enjoyed a European reputation. Recognition of his eminence has been freely accorded from all quarters, but of the numerous distinctions showered on him we need mention only the Copley medal of the Royal Society bestowed in 1873, and the fact that ten years later the German Emperor raised him to the ranks of the hereditary nobility. Apart from his scientific work the life of Helmholtz has been calm and uneventful. After his marriage he dispensed a gracious hospitality in his official residence at Berlin, and he was all his life a genuine lover of the arts whose physical basis it was his great work to establish. One may without impropriety figure him as occupying in science a position not unlike that of his great countryman, Goethe, in literature. Breadth, universality of comprehension and sympathy, and a certain unmistakable, intellectual serenity are characteristic of both.

A NEGRO PHYSICIAN IN INDIANAPOLIS.

We cite the following case (from the *Medical Record*) as an illustration of the manner in which the white population of the Southern United States strive to elevate the race which has been degraded and brutalised by slavery. *Quos læserunt et oderunt.* A negro was appointed, after competitive examination, to the Indianapolis City Hospital as interne. The young man is of Massachusetts birth and is twenty-one years old. He is a graduate in arts of the State University of Missouri, and received the degree of M.D. from the Medical College of Indiana in this year's class, ranking third in a class of fifty-four, all the others being white. This appointment of a negro, though fairly won, has caused a most bitter outpouring of abuse upon the young man and all concerned in his appointment. His services began in the surgical wards, whereupon the pay patients left and the charity patients made bitter complaint at what they considered an indignity. The general character of the vituperation can be judged by the following extracts from a letter to one of the local medical papers. After bewailing the fact that during this young man's service—which the writer will only speak of as "these circumstances"—no pay patients will enter the hospital, and thereby the city will lose some two to five hundred dollars a month, the letter continues: "The worst feature of this unfortunate situation is that in four months, by rotation, this young man will be placed in charge of the obstetrical department, and white women, whose only crime is poverty, must submit to the unspeakable outrage of bringing innocent children into the world under the touch and manipulation of this son of Ham." He then asks "the Board of Health, who made this appointment, the cringing politicians who prevent the righting of the wroug, and, lastly, all persons who favour this phase of negro equality: "How would *you* like to look back to the day of your birth and know that a negro doctor helped to usher *you* into the world?" In conclusion, he says: "If the Indianapolis city government does not place this young man where he will only administer to those of his own race, as is fit and proper, they will rob the city treasury, degrade and humiliate many persons, benefit no one, and deserve everlasting contempt from every citizen, both white and black."

HOMŒOPATHIC THERAPEUTICS.

THE *Atlanta Medical and Surgical Journal* gives some remarkable samples of homœopathic therapeutics. We quote part of our contemporary's article:—"We learn from a late issue of the *Hahnemannian Monthly* that if a patient sleeps with knees apart give him chamomile; if he sleeps with legs stretched out at full length give pulsatilla; and if he sleeps with one leg drawn up and the other stretched out give stannum; if a patient has a hot, pale cheek, and a cold, red cheek give moschus; if a patient in confinement 'curses' you, spits in your face and pulls your whiskers, give chamomile, etc. The *North American Journal of Homœopathy* for May contains a very exhaustive study entitled 'Some Peculiar Sweats.' The treatment of them is equally as peculiar as the sweats. Thus if only the front part of the body sweats, *amanita*, *phosphorous*, etc.; if the back part of the body, *sulphur*; if only the upper half of the body sweats, *nux vomica*, *opium*, etc.; if the lower half, *crocus*, *cyclamen*, etc.; if one sweats on the right side, *aurum*, *sodium*, etc.; if he sweats on the left side, *fluoric acid* and *jaborandi*; if he sweats only on the face, *ignatia*; and finally, if he sweats in spots, *tellurium*. For sweats after coughing, *arsenic*; for sweats as soon as one sleeps, *arsenic*; for sweats as soon as he drops into a sound sleep, *cinchona*; for sweats in the morning, *angostura*; for sweats while eating, *oleum animalis*; for sweats after unsatisfactory coition, *jambos eugenia*. If the sweat has a smell, *collodium*; if it smells sour, *natrum phosphas*; if it smells like spice, *rhododendron*; if it smells like horse's urine, *nitric acid*. So also in the *Southern Journal of Homœopathy*, for February, there is an elegant paper on 'Some Peculiar Coughs,' with the indication for each variety. Thus, when the cough occurs every morning at six o'clock, *cedron*; when it occurs in the day, not at night, *ferrum*; when it occurs in the night, not in the day, *conium*; when the cough is worse when lying on belly, *baryta*; when worse when lying on left side, *mercurious*; when the cough is aggravated in the presence of strangers, *baryta*; when aggravated by music, *creasote*; when it comes from playing on the piano, *calcarea*; when the cough occurs regularly from February until summer, *stannum*; when involuntary stool occurs with the cough, *phosphorus*; when involuntary emission of urine occurs with it, *alumina, capsicum, bryonia*, and others."

ATMOSPHERIC PRESSURE AND PNEUMONIA.

THE *Journal of the American Medical Association* prints a paper on the Influence of Atmospheric Pressure on the Prevalence of Pneumonia, which was read by Dr. C. Max Richter, of San Francisco, at the late Annual Meeting of the Association. We can give only his conclusions, which are as follows:—"During the month in which the extreme of high pressure rises to a higher extreme, and that of the low pressure to a lower extreme, the mortality increases correspondingly, but it does so in proportion to the higher rise and not to the lower fall. This law shows such regularity, that in any given month of the year probably in any part of our globe we may be able to predict in future whether a greater mortality from pneumonia may be expected or not." "In over 80 per cent. of the forty-nine years observed by me in Berlin, Munich, New York, Cincinnati, and San Francisco, a direct coincidence of the highest and lowest figures of air pressure and mortality from pneumonia, is fully established."

ADVICE TO MEDICAL STUDENTS.

PROF. E. R. Axtell, of Colorado University, suggests (says the *Journal of the American Medical Association*) the following programme for the medical student "during the summer interregnum." He admits honestly that he did not carry it out himself when he was a student. "On every week day you are to rise at 6 a.m. One hour is given for the toilet and for breakfast. On Tuesdays, Thursdays, and Saturdays, the days on which you recite, review your lesson from seven until seven forty-five. If you recite from eight to nine, walk to the place of recitation, and after it is over return to the room at once and study until twelve. From twelve to one get your noon-day meal, which under the schedule I am giving you should be the main meal of the day. From one to two in the afternoon you should go to bed. Do this in earnest. Throw off your clothes, don some cool sleeping gown, and darken the room. Your alarm clock will tell you when it is two o'clock. From two to five you study. From five to six you exercise. Walk, ride, use some Indian clubs, box or wrestle. Some of the greatest tussles of my life occurred between my room-mate and myself, between the hour of five and six. Supper is taken from six to seven. Then a rest until seven thirty. Then study until ten. Go to bed at once."

IMPROVED EXECUTION.

THE *Medical Record* states that Connecticut is about to introduce a new and improved method of execution by hanging. The platform gives way under the criminal's weight, without necessity for "drawing the bolt." The objection has been raised that the patient executes himself and is thus compelled to commit suicide.

VITAL STATISTICS IN THE UNITED STATES.

THERE are no vital statistics worthy the name in the United States, as a whole.—*Jour. Am. Med. Assoc.*

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Emol-Keleet.

EMOL-KELEET is a purified natural, emollient, absorbent dusting powder, of impalpable texture, as soft as down to the touch. When placed upon the tongue, there is an entire absence of any sensation of grittiness.

Chemically, emol-keleet may be said to be closely allied to superior qualities of fuller's earth, yet it is quite distinct from the usual varieties of that substance, in that it contains a considerable percentage of steatite (known commonly as soap stone) as well as of silica, alumina, traces of calcium salts, and an appreciable .trace of ferrous oxide. The delicate flesh-pink tone of emol-keleet—one of its much-admired characteristics—is due to the presence of ferrous oxide, while its soft silky feel is largely occasioned by the presence of steatite.

A teaspoonful mixed with a basinful of hard limestone water has a softening effect upon the water. Used with warm water in the same proportion, emol-keleet acts as a natural soap. It relieves itching, when applied as a dusting powder to an irritable skin. It dries up eczematous or ulcerated surfaces, and is an excellent topical application after vaccination. It may be obtained in neat boxes at a very reasonable cost—ninepence per box to the medical profession, or one shilling retail. Messrs. Burroughs, Wellcome & Co., manufacturing chemists, of Snow Hill Buildings, London, E.C., are the sole agents.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

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THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

DECEMBER 1, 1894.

PART I.

ORIGINAL COMMUNICATIONS.

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ART. XIX.—*Some Lessons of Life.*[a] By W. THORNLEY STOKER, President of the Royal College of Surgeons in Ireland; Surgeon to the Richmond Hospital.

IN pursuance of a honourable custom I am here as President of the Royal College of Surgeons in Ireland to declare its School open for the Session of 1894–95, and to address to its students a few words of welcome and of advice. . As regards welcome, I need not expend myself in much speaking, because the interest this College has always taken in its School speaks more strongly than I could for the pleasure with which we see a new class commencing its studies and the earnest hope we entertain for its welfare. As for advice, I shall remember that you get a good deal of it. La Rochefoucauld says: "We bestow nothing so liberally as our advice," and in pity of you under the avalanche of counsel which has fallen on you in introductory lectures within the last few weeks, I shall place a strict limit on my benevolence in this respect, and be as brief as I may. Sydney Smith has said that some one deserved "to be preached to death by wild curates," and I have no wish to become polemical or inflict so dreadful a penalty on a number of young and, for the most part innocent, persons.

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[a] Being an Introductory Address delivered to the Students of the Royal College of Surgeons in Ireland, Thursday, November 1, 1894.

It is a pleasure to be able to tell you that certain matters which you wished changed, and concerning which you addressed the Council last Session, have received the attention of that body and have been altered in the directions you desired. The four principal points of your representations were—

1. Increased accommodation for students in the way of waiting and refreshment rooms;

2. Alteration of fees for the re-examination of rejected candidates;

3. Reduction of the cost of the Conjoint Diplomas; and

4. That candidates who had failed to pass should not be required to take out additional courses in the subjects in which they had been rejected.

Concerning the first of these, increased accommodation for the students of the School has been provided, and more will be done in the same direction; you can now have that physical pabulum which you require as well as mental food, and can keep your bodies nourished as well as your minds.

Regarding the second, we have conferred with the College of Physicians, and have arranged a sliding scale of fees for re-examination, which is now in force, and under which a charge is made proportionate to the number of subjects in which examination has to be carried out. I may remind you that even before this change was effected the fees for re-examination were here much smaller than in either Scotland or England, and that you were, and are, greatly better off in this respect than your fellow-students across the Channel.

The third subject is the more difficult one, of the reduction of the diploma fees. Here we are encumbered by difficulties. One is that the College of Physicians shares the fee, and although technically we can reduce our proportion of it without reference to that body, in actual practice mutual action would be called for. Let me remind you that our fee, although somewhat larger than that in Scotland, is not in excess of that in London, and let me also tell you that any money derived by the College from its diploma fees is entirely spent on matters proper to your interests—on examination, on the sustenance of a library and a museum, and on the expenses of this School. Do not imagine that the School is a source of profit to the College.

On the contrary, it is a very costly appendage. It is one on which, in the interests of medical education, the College has spent large sums of money, but which, although it is a severe yearly drain on our exchequer, we have cheerfully maintained in your service and that of the public.

Of the possibility of reducing this fee, I can say no more than that it is receiving anxious consideration, but it is a matter in which we must go slowly, for this College has no endowment, and is only able to serve the cause of surgical education by the profit hence derived. Having reduced those fees I have previously referred to, we must see what lies in front of us before we step farther; we must write *festina lente* on our tablets; and not hurry into a reduction which would impede or prevent our public usefulness and lessen our power to be of service to you and to those who may succeed you.

The fourth matter, that of requiring from rejected candidates evidence of having attended additional courses of practical instruction, is one we need not stop to discuss. The rule is not ours. It is made by the General Medical Council, and we are powerless to alter it. We have one protection against its abuse—that it is discretionary; and as it has not yet been made compulsory by the General Council, you have as yet no grievance about it. Time enough to complain if it becomes operative.

To pass from matters which have troubled you to those which seem to be exercising other people of late, I would like to say a word about the alleged falling off in the Dublin School of Surgery and Medicine. I utterly repudiate the idea that any decadence in the quality of teaching has taken place. I am convinced that the abilities and devotion which marked the teachers of a past generation is existent in that of to-day, and that those who succeed the Irish workers and thinkers of our time will do them the justice of a recognition they can surely claim. It is the fashion with certain pessimists to glorify the past at the expense of the present. View these persons with doubt, and consider whether they may not have formed a standard for their contemporaries founded on a narrow introspection of their own intellectual position.

Apart from a change in quality, it has been stated that a falling off in numbers has taken place in the students of the Dublin School of Medicine, and it has been inferred that this implies a material decadence. Supposing the fact to be true, I deny the inference. But, do not number Dublin students only, when you measure the Irish School; recollect that three new centres of education have sprung up in Belfast, Cork, and Galway, and that they have naturally subtracted from the congregation of students in this city. Or if you come to gauge our strength by the number of men who obtain qualifications from the Irish universities and colleges, do not forget that nearly every student educated in certain provincial schools who does not proceed to the Degrees of the Royal University, goes to England or Scotland for his diploma. If these students elect to obtain Scotch or English qualifications it is surely no argument against Irish schools, where they have obtained the training necessary to fit them for their diplomas. Let us see if this exodus can be fairly taken as an argument against Irish Licensing Bodies. Why do these students go? Is it because the diplomas are cheaper than those at home? If this be a reason it does not apply to England, and the difference is so small in Scotland that it can only influence a moderate number of students, and is of no general import. This is the more true in that the apparent economy of the Scotch fee is lessened by the amount of the charges for re-examination. Or is it because the examinations are more easy to pass? If this be true, it is to the credit of the Irish corporations that they have not entered into an unworthy downward competition, but have in the best interests of the public good maintained a proper standard of professional fitness and refused to flood the market with practitioners of inferior merit.

But even suppose a falling off in the aggregate of Irish students had taken place, would it be wonderful? Look at the impoverished condition of the country and the unsettled state of those classes from which our students have been chiefly drawn, and see the way in which the gates of the approach to our profession are being gradually locked by that most imperious and irresponsible body, the General Medical Council. It seems to be working in nearly every direction except the right one; it is overloading the unhappy student with new subjects and new courses, and now has imposed a sorry burthen on him, and those who pay for him, in the shape of a fifth, and, I believe, wholly unnecessary, year of study. If any argument can be brought forward to justify this fifth year, it is that so much of so many things have been given to the pupil to do that he cannot complete them in four years. This is a reason for diminishing his curriculum, not for weighting him with a further period of study. The General Council is working at the wrong end; it is all very well and very proper to bar the gate that leads from the life of the student to that of the practitioner, and to let none through save those duly qualified; but this process has been carried to excess, and enough attention has not been paid to guarding that other gate which leads into the life of the student. Men are allowed to enter the outer court of the temple who can never pass into its penetralia. Registration as a student of medicine should be dependent on passing a much more exact matriculation than at present, and subjects such as physics should be passed at this period, so as to leave the worker free for the more purely medical branches of his work. This would impose no additional penalty on the pupil, would add to his professional opportunities, and would prevent many a poor fellow commencing medical studies who will never be able to complete them. There is necessarily, under the growing severity of tests, an increasing number of such men, and the waste of time, money, and opportunity consequent on their being permitted, by too easy matriculation, to enter on medical studies, is to be lamented.

The latest exploit of the General Council is an act with reference to dental students which seems to me to strike a blow at the honesty and efficiency of their education. The old and costly system of apprenticeship has practically been reimposed, and this College, which had abolished it, has been compelled by the General Council to return to the *status quo ante bellum.* In this I believe the Council has been moved by influences I need not name, and for reasons I forbear to analyse. That a mistake has been made will be evident when the time comes—and it is not far off—when this imposition shall be again removed.

There is a recent occurrence which affects Irish students unfairly, and of which I would say a word. Until lately the class of gentlemen who were appointed to examine candidates for the Army Medical Services was nothing short of a scandal—so much so, that Mr. Campbell-Bannerman proceeded to rectify the abuse, and appointed a new and competent Board of Examiners, but one composed of men working and teaching in London. In spite of strong representations made to him as to the injustice thus inflicted on Irish students, who form a large proportion of those competing for the Army Medical Service, the Minister for War refused to make any change. He was asked to appoint one Irish and one Scotch examiner for each two English, but no, it would not be done. Of course, students do better in competition when examined by those who have been engaged in educating them, and so a direct premium is offered to prepare for the Army Competitions in London. Considering that so large a part of the Military and Naval Medical Services has been recruited from Ireland, this is a grave injustice to our students and teachers.

It is the custom at meetings like ours to offer much counsel to those who are entering on their professional studies. They are advised *ad nauseam*, told when to work and when to play, what to eat and how much to drink, and given such a surfeit in general, that it is small wonder if they often fail to retain any great amount of it. You have been well crammed with unsavoury food of this kind, and I do not purpose to add to your load. But will you allow me, as an old student, to say a few words to my younger brethren, who are leaving these walls to fight the broader battle of life. I remember how much good counsel was given me when I began my medical studies as to how to occupy my years as a student, and how very little advice I got as to the conduct of my more hazardous life outside the walls of a college when I went into the world to seek my fortune. I think that out of my experiences I may be able to say a few words to others who will feel the want that I did. It is now 33 years since I sat for the first time on those benches to listen to an introductory lecture by Arthur Jacob; I have ever since been connected with this College—as a Student, a Demonstrator, a Professor, an Examiner, or a Member of its Council, and now as its President; and it is with grave feelings of responsibility that I come here to-day to renew the associations of my youth and mingle once more with those of a younger generation who are commencing to walk that path which, by the favour of God, I have trod for so many happy years. At such a moment I am full of earnest thoughts, and if I stay for a while to give some words of advice as to their governance of themselves, to those who are about to enter on the active struggle of life, they will, I hope, believe that I am speaking out of a full heart, and in the trust that one or two of the many lessons of life which I have learned may help some wayfarers younger than myself. I do not presume to teach; I wish to speak as an elder to younger brothers, and one learns so much in his own life from his mistakes, that it may help you to know the pitfalls into which a previous traveller has been beguiled. Our mistakes are the milestones that mark the passage of our years and the growth of our knowledge, and from them, and not from our successes, we gather what wisdom we have.

I have learned that the quality which carries men most happily and successfully through life is that most uncommon one called "common sense." If you will watch—not one man, but all men, you will come to the knowledge that genius and learning, great though they be, are not such important factors in our lives as this precious gift. Ask what is meant by "common sense," and I will say, for want of more facile definition, "that possession of sound judgment which avoids mistakes." It is an attribute which can be improved by cultivation, and is a most comfortable one to contemplate, because although we may want genius or great learning, we may all own it in a measure, and may all increase it in ourselves. Mr. Whistler is not the class of philosopher I would, as a rule, recommend to the study of young men, but in that clever and eccentric "Gentle Art of making Enemies," he formulates some pieces of advice which, if not taken in too worldly a spirit, are worth considering in relation to your cultivation of your own common sense.

"Do not mind what men say of themselves."

"Do not mind too much what other men may say of them."

"Pay much attention to what you think of them. Watch them, study them, for by your study of other men you learn to see yourself and know your place in the scale of life."

As I have spoken of the attribute of common sense in connection with "success," do not interpret me as merely meaning that success which the world at large esteems. Remember that there is an inner as well as an outer life. The aspirations and strivings after worldly success which beguile us are but shadows. The true success is achieved when there comes that state of stable equilibrium of mind which puts us at repose and when we accept our places in the scale of life with resignation or composure. Then our vain jealousies disappear, we estimate ourselves at our true worth, and can look at our fellows with no jaundice in our eyes.

Of all the individual qualities at our own command there are three that seem most precious to our well-being and dignity, and to our relations with those about us; they are—

Silence,
Tolerance, and
Obedience.

Bitterly must he who has lived in the world regret many things he has said; I know one man who does, but who has seldom had cause to lament his want of speech. Judicious reserve is often better than temperate speech; and those of us who can go through life observing the golden rule of silence are more blessed than even the most silver-tongued of mortals. If there are men in any relation of life of whom this is most true, it is ourselves, for the guarded tongue should be the special attribute of the physician, not only for his own sake, but for the protection of those with whom he is in contact.

He who early learns the lesson of Tolerance is spared much sorrow. "My dear child," said George Eliot in one of her letters, "the great lesson of life is tolerance," and an early appreciation of this will bring us peace with those about us, and lend to our mutual regard and esteem. The best loved and most reverenced men I have known have been those who were most judiciously silent and most tolerant. They have not been men without words, or of weak nature, but have been gifted with a happy sense of when not to speak, and when not to enter into rebellion against the acts or ideas of others.

For the better understanding of your fellows, and the better examination of yourselves, keep not aloof from those about you, for the recluse, or he who walks through the world wrapped in the mantle of the cynic, cannot have that sympathy with his kind from which a lofty morality may spring. A writer I have quoted before, said, "The first condition of human goodness is something to love; the second, something to reverence."

But the sternest discipline of all is that of Obedience. Theodore Watts, in one of his critical articles, has said, "The finest definition of human happiness ever made was that embodied in the dying words of the good and great Dr. Hammond—'uniform obedience,' exercising the instinct for obeying rather than the instinct for directing." In this double pronouncement you have the loftiest morality and the greatest wisdom, and a rule of life which, if you can but follow it, must lead you into the paths of summer.

Young fellow-students, I have said my words, and although they are few, if you and I can follow them we shall be happier, as well as better men, and more useful citizens. Cultivate common sense; be silent, tolerant, and obedient, and be not unrestful or unduly given to striving; accept things as they are ordained, and remember the words of the Caliph Ali:—

> "Thy place in life is seeking after thee; therefore be thou at rest from seeking after it."

ART. XX.—*The Effects of Alcohol on our Military and Civil Population at Home and Abroad.*[a] By BRIGADE-SURGEON F. E. M'FARLAND, A.M.D., retired; Consulting Physician, Ulster Hospital for Women and Children; President, Ulster Medical Society.

GENTLEMEN, I thank you most heartily for the great honour you have done me in electing me President of the Ulster Medical Society, and I thank Professor Byers for his generous remarks of me. We have all seen him shooting to the forefront of the Medical Profession, not only in Belfast but in the United Kingdom and further; and this he was bound to do, in virtue of his profound knowledge, brilliant talents, and force of character. He can well afford to be generous to me. When I retired from the army, in which I had been a surgeon for more than twenty years, I settled in Belfast. You received me kindly, permitted me to fall into your ranks, and, in due time, you have made me President of this great Society. I have not been much of an acquisition to the Society, have scarcely added to its literature, or even been a regular attendant at its meetings. Neither am I a North of Ireland man, nor did I study at your College. I did not put myself forward for the distinction—I assure you it came upon me as a surprise, but the honour was too great to decline. I can only attribute it to your generosity and largeness of heart, and again offer you my sincere thanks.

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[a] An Inaugural Address read before the Ulster Medical Society at the Opening of the Session, 2nd November, 1894.

This Society has advanced by leaps and bounds even since the time I joined it. I do not mean in numbers only, but in the class of men who have joined. I am not one of those who live in the past, and say—"There were giants in those days," but I say there are giants in these days; and whenever I speak to young members on medical subjects it makes me wish to be a student again.

Each of my predecessors, selecting his own particular specialty as the subject of his Address, has brought this Society up to the day in the various branches of professional subjects. There is, however, one subject left, which bears more than any other on the health and well-being of the nation, and that is—the Drink Question. My address, therefore, will be—"The effects of alcohol on our military and civil population at home and abroad."

During twelve years' residence in India I had an opportunity of seeing its effects in that country. India is a remarkable country in many ways, and our tenure of it is one of the greatest miracles in history! How England, with a handful of men, many of them invalids, has been able to keep a population of much over 200,000,000, not in check but in absolute submission, is the marvel! Now there are different ways of accounting for this. The population of India consists of Mussulmans and Hindoos, and if the English were out of India to-morrow these would be at war with each other, and the Mussulman would most likely prevail. Another reason is that though both races hate us as an alien race in their country they respect our laws; but another and perhaps the greatest reason that we hold India is—the two races, Mussulmans and Hindoos, are a sober people. Mahomet taught his people not to drink, as it made men mad; and Brahma and Buddha taught their followers not to touch strong drink, as it is an unclean thing. The result is, I may say, there is hardly any drunkenness among the natives of India, and an English lady might land at Bombay or Calcutta and travel to almost any part of India, and she would never meet with an insult or incivility, and that, not because they have a respect for women, for the reverse is the case, but because they are a sober people, and know that the matter would be reported, and the offender would be detected and punished.

Now, some time since it was proposed to establish an "out-still" system in India, which simply means public-houses under Government licence, with the object of raising revenue. My belief is that if this were done, and that drinking habits could be introduced among the natives, we could not hold the country a single year; it would become a perfect pandemonium.

I entered the army in the year 1858, and was at once sent to India, at the close of the Indian Mutiny. Now, at the close of a campaign, discipline is apt to be a little relaxed; and certainly, in numerous cases, both officers and men had contracted drinking habits to a considerable extent. I have seen some of the most promising fellows in the service go shipwreck from strong drink. I was on the staff for one year, doing duty with various corps. The next year, 1859, I was gazetted to my first regiment. It was a distinguished regiment—had been to the Crimea, and lost half of its men at Inkerman; but, like most other regiments at the time, it was a fine old drinking regiment too. There was no temperance society in it, and the colonel, who was the soul of honour, would not allow one, feeling that a man would be more demoralised by breaking his pledge than by drinking. In India, except in large cities like Calcutta or Bombay, there are no public-houses—the regimental canteen serves the purpose; but there are spirit merchants in every station.

There was a good deal of sickness in the regiment during a great part of the time I was with it, and many fatal cases, attributable to drink, especially among the non-commissioned officers. We doctors had, for the most part, a busy time. After seven years in India I returned home with the impression that rum and beer were the great enemies of the British soldier. At this time there were two issues of rum in the day. Each issue, or tot, as it was called, was about 2½ ounces. Previous to this, in the days gone by, there were four issues, the first at early dawn; and even the drum-boys were compelled to take their tot the same as the men. I returned to England in 1866; had been transferred to the artillery; and during the eight years I remained at home my experience was that when men were in a large town or city like Woolwich or Belfast, they drank, deserted, and filled the hospital; but when they went into camp they were sober, well-conducted, and healthy. In Aldershot—which is called a camp—there are enough public-houses in all conscience. Every second house in the district is a beer-shop; but as there are no rich civilians foolish enough or weak enough to treat them, it is a case, as a soldier jauntily expressed it, "We calls for drink after drink, and seegar after seegar, as long as the blooming sixpence lasts."

The Government is wise in the payment of soldiers; they are paid in kind and not in cash. A soldier is well housed; gets good food, and it is well cooked; and he is well clad. An excellent institution exists, called the weekly kit inspection. Once a week every man's kit is laid out according to regulation, so that at a glance the company's officers can see if anything is defective or deficient; and if so, the article is ordered to be made good from the quarter-master's stores, and the man is put under stoppages till the price of it is recovered. Boots, socks, shirts, and every article must be in good repair; this makes the men scrupulously careful of their things, and when all deductions have been made the soldier has about sixpence to lavish; but he has other advantages. If sick he is treated in hospital, and his pay goes on; if ill-conducted he is put into the military prison and pay is stopped. He has what is called deferred pay, twopence a day, which is laid up for him, and which he receives on leaving the service if his conduct is good. After twenty-one years' service he is pensioned for life, and if he is incapacitated sooner, from injury or disease incurred in and by the service, he has pension according to the nature and extent of his disability. There is also in each regiment a school and qualified schoolmaster, where the unlearned soldier can be taught and qualified for promotion. You will see from this that the British Government wisely pays her troops in every way but cash, which would only be spent in drink. In the year 1874 I again returned to India, after an absence of eight years. A change had come over the spirit of the scene, and principally through the efforts of one man, the Rev. J. Gelson Gregson, the Father Mathew of India, I think the most remarkable man I ever met. To say that he travelled through every station in India is nothing—he did it two or three times a year. In the hot season, when it blew like a furnace; in the rainy season or the cold—all was the same to him, he went from station to station strengthening the temperance societies which he had organised in every regiment. Some commanding officers were favourable to those societies, some were not, more just tolerated them, but it mattered not to Gelson Gregson, he went on with his good work, and certainly I found a wonderful change since the time I was in India before; not only were there a great number of teetotallers among the men, but there was a temperance element introduced into the service that never existed before, and this had spread to the whole Eurasian population, transforming them and improving them in every way. Mr. Gregson also introduced a form of pledge which, while it does not bind for a single day, is the one that is found to bind for life. It only binds a man while he keeps it in his possession. He can tear it up whenever he likes and be free from his obligation.

Also at this time, instead of two issues of rum, only one was allowed, and in the last regiment I did duty with even this issue was divided into two. The canteen opened at a quarter to seven in the evening for the first half, and at a quarter past seven for the second half. The canteen was again opened at eight o'clock, when a man could buy, at his own expense, a glass of spirits or a bottle of beer; but even this was productive of bad effects. Owing to the intense heat in the hot weather (and the hot season is very long), the men suffer from various affections and fevers, and from neurasthenia or nervous exhaustion generally. The result is that thirst is trying, and when in addition they take spirits at the canteen, the desire for more becomes almost imperative, and in too many cases it leads to men taking native drink. Many and curious are the ways the men adopt to obtain this poison, which is very deadly in its effects. I will not take up your time by describing the different kinds; all vary in strength according to the length of time they are allowed to ferment, and are a great cause of hepatic abscess and other illnesses. We hear a good deal in India of sunstroke, sometimes called heat apoplexy, insolatio or ardent fever, and that it is more common at night when men are in their beds than when out in the sun. My experience, and that of others, was that in too many cases the men had taken spirits largely before going to bed, and that, although they died of sunstroke, drink was the cause. What is the state of things now in India? Lord Roberts crowned his splendid tour as Commander-in-Chief of India, by wisely abolishing the rum ration entirely. We have now an army in India of about 75,000 men; of these

25,000, or one-third, are teetotallers, and a temperance element is developed through the whole army in India greater than ever before known. In a late number of an Indian temperance paper, called the *On Guard*, I saw my old regiment, which is again in India, heading the list of temperance regiments by the highest number of total abstainers (450), the result of the good influence of one commanding officer, Colonel Colquhoun, one of the finest fellows in the service, who commanded them some years since. Lord Roberts did a still better thing than abolishing the rum ration, or as good, namely, he has caused the temperance society to become part and parcel of the regiment, and a regular return has to be sent to the Commander-in-Chief, signed by the officer commanding the regiment, who is responsible for the accuracy of the numbers. From this you can judge of Lord Roberts's opinion of the drink question.

What are Lord Wolseley's opinions? He says, in a letter to the Grand Secretary, Independent Order of Good Templars:—"There are yet some great enemies to be encountered, some great battles to be fought by the United Kingdom, but at present the most pressing enemy is drink. It kills more than all our newest weapons of warfare, and not only destroys the body but the mind and soul also. All movements intended to meet this foe commend themselves to me, and no one can wish the Good Templars success more than I do. I am glad to say we have now but little drunkenness in the army—less of it in our ranks than in any other class of her Majesty's subjects. To this fact I consider we owe much of the improvement, in every respect, that has been steadily going on among us for the last twenty years." These are the words of England's greatest General.

We tried large quantities of stimulants with our soldiers when we first acquired India, and found the result was sickness, mortality, and crime. Then we tried a smaller quantity with improvement, then smaller still with increased benefit, then no spirit ration at all, with the best results. We have the finest army we have ever had in India—sober, well-conducted, and healthy as an army can be in the climate which varies so much. One station may be healthy and the station next to it the reverse. I know temperance does not deserve all the credit for the improved condition of things. Sanitation, improved cooking, extra accommodation in hill stations—we have barracks for 14,000 now in the hills—but no one can deny that it is to the improvement in drinking habits principally that the great change is due.

Now the question arises—Is alcohol food?—for, if it be, it is a food we seem to get on very well without. This crucial question I am not going to solve; but, in the fewest words, put the matter before you, and I do this with diffidence, knowing that most of you understand the matter better or as well as I do myself. I may say there are two parties. One party believes that alcohol is neither assimilated nor changed, but is expelled as something foreign, by the kidneys, lungs, and skin principally. The other party believes it undergoes combustion in the system, producing heat and force, but what the combination is they cannot tell us.

Now there are many kinds of alcohol, notably six—methylic, ethylic, propylic, butylic, amylic, capriolic—but it is with ethylic we have to do, C_2H_6O. The theory of Baron von Liebig was long believed, that the whole of the alcohol was consumed in the body; but French chemists—Lallemand, Perrin and Duray—performed a series of experiments in 1860, proving that alcohol was eliminated from the system unchanged. These experiments were performed by distillation and condensation, and by causing persons who had taken alcohol to breathe through a tube into a vessel containing bichromate of potassium and sulphuric acid in solution, and in such cases the colour of the solution was changed from red to green, though no change took place when persons breathed through who had not taken alcohol. This seemed to settle the point, when the late Dr. Anstie performed a series of experiments, and he found that only a small portion of the alcohol was so eliminated, and maintained that the remainder was consumed in the body in a sense forming food. The late Professor Parkes, in his reply to him, said that, if a food, Dr. Anstie could not say whether it were a food for good or for evil. Richardson, in his Cantor lectures, admits that the whole of the alcohol drank is not recoverable, and suggests that probably it may have been converted into aldehyde, which by a process of oxidation is again disposed of within the body. I think we can leave this interesting question in the hands of the chemist, and with the proofs we can learn from our Indian army, and from the hundreds of thousands of our civil population at home, who do not touch alcohol, we can say that if alcohol is food it is food for evil, and a food that we are better without. There are many excellent definitions of food given by eminent physicians and scientists; but plainly it comes to this, that food is that which produces bodily heat and forms tissue, and so force. That alcohol produces animal heat is disproved by Richardson, by a series of experiments on men, animals, and birds. He shows that there are four stages in drunkenness. In the first, which is pleasurable, the heart is stimulated and quickened, the capillaries are dilated, there is a rush of blood towards the peripheries, with a very slight increase of heat, half to one degree; but he shows that this is really a cooling process, for the blood gets cooled at the surface of the body; and, in the second stage, sinks to below normal; and, in the third stage as it approaches the fourth stage, the temperature becomes so low as to become dangerous, three or four degrees below normal. How alcohol forms tissue, except by causing fatty depositions, it is difficult to understand, as it does not contain nitrogen.

That alcohol is not a producer of heat is proved by experience. All Arctic explorers give their evidence against it. All the men who took alcohol suffered more than those who did not—so much so, in most if not in every Arctic expedition, its use had to be discontinued.

We come now to the effects of alcohol on our civil population at home, and we find it appalling. We spend about £140,000,000 on strong drink. To estimate the magnitude of this sum, we learn that it is more than the rental of all the houses and of all the farms in the United Kingdom. The rental of all the houses in the United Kingdoms of England, Ireland, and Scotland is only £70,000,000, and of all the farms £60,000,000, making £130,000,000, and we drink £140,000,000. Now, this is a fearful waste; but it does not end here. It is calculated that the country loses some £50,000,000 through loss of labour—men not working their full time. Mr. Benjamin Whitworth, M.P., stated, that in the works to which he belonged, they considered the firm lost £35,000 a year, through men not turning up on Mondays; so much so, that it was not worth while opening the works on that day. Then there is some £30,000,000 expended in prosecutions for crime, legal expenses, prisons, poor-houses, lunatic asylums, and 101 other results of intemperance. Another heavy loss which cannot be computed arises from the early deaths and sickness of working-men in their prime. It may be said that we doctors have nothing to do with those matters; but we have everything to do with every matter which bears on the public health, and have as much to do with the prevention as with the cure of disease. Dr. Norman Kerr puts down 40,000 as the number who die annually in this country from strong drink *directly*, and about 60,000 who die *indirectly;* and these figures have been confirmed by the committee appointed by the British Medical Association, and also by that appointed by the Harveian Society. Others consider these figures much too low, and would certainly double them. And we ourselves know how many cases there are returned as pneumonia, liver, kidney, lung, and heart diseases, who have just drunk themselves to death; but, in respect for the feelings of survivors, no mention is made about the drink, but the actual cause of death is sent to the Registrar-General. The case of the drunkard is hopeless so long as he drinks. For him there is only one remedy, and that is, "Do not drink." He must not touch alcohol in any form if he wishes to save himself. But, unfortunately, the family of the drunkard suffers. Children require pure air, wholesome food, and sufficient, suitable clothing, and should have proper education. The children of the drinking artisan or working-man at night are often crowded in close, ill-ventilated rooms, breathing and re-breathing the same foul air—no more fruitful source for developing phthisis and struma; often little or no bedclothes, but huddled together for warmth. They are tea-fed and underfed. We can see them on the severest days barefooted and underclad, and we can tell the children of drinking parents from those of sober. Education is all very well if children are sent to school after a good breakfast, and comfortably clad. And it is better that they should be barefooted than that they should be ill-shod and sit in wet shoes. But the drinking fathers and mothers care little so long as they can gratify their horrible craving for drink. People talk of the children of the poor being hardy. It is not so in towns and cities. The mortality is out of all proportion greater than that of the well-to-do classes. Now, the only remedy is to remove or properly control the plague-spots of temptation—the public-houses. This can only be done by the mighty *vox populi*, quietly and lawfully and at the polls. Too long have the artisan and working-man paid their tribute at the expense of health, happiness, and everything that makes life worth living for, to enrich the publican, and enable brewers and distillers to amass colossal fortunes.

Dr. Ringrose Atkins, Superintendent, Waterford District Lunatic Asylum, a distinguished psychologist, lecturer, microscopist, and photographer, who was President of the Irish Temperance League last year, gave a most interesting lecture when here on the disastrous effects of alcohol on the vessels and nervous matter of the brain, exhibiting photos of sections of brains of alcoholics, illustrated by the lime light. He very kindly sent me a series of photomicrographs to show to you. These illustrate the progressive changes that take place in the brains of alcoholics. I am not a profound pathologist, so will just quote Dr. Ringrose Atkins's words. He considers in the early stages of alcoholism the most important and constant changes are "excessive nucleation of the vessels (arterioles), with consequent involvement of their coats and diminution in calibre of their lumina, and increase in the number of the neuroglia cells, both protoplasmic and fibrous, as Bevin Lewis and Andrietzen have pointed out. The nerve elements, both large and small cells, are affected in the later stages, undergoing either pigmentary or fatty degeneration, or shrinking and breaking up into molecular masses, with infiltration of nuclei." Now, Dr. Ringrose Atkins does not hold that these changes are special to alcoholism, or only found after its abuse. Nearly similar changes are found in other diseases and conditions of irritation, and the later changes are found in cases of chronic dementia, old standing paralysis, &c. Dr. B. W. Richardson, in his course of Cantor Lectures, shows the action of alcohol on the blood if taken in sufficient quantity, by either fixing the water with the fibrin or extracting the fibrin, and so producing coagulation; on the red corpuscles by extracting water from them owing to the powerful affinity alcohol has for water, and in doing so altering their shape and course; also its effect on the vessels themselves. He shows especially how alcohol acts on the colloidal membranes—that the skin which covers us is colloidal, all organs and blood-vessels to their minutest ramifications, all organs, nerves, muscles, and their fasciculi are sheathed with colloidal membrane, as well as the whole of the alimentary canal. It covers and penetrates the liver, kidneys, and other solid organs. It not only supports the tissues and keeps the body in position, but it acts as a filter, and its efficiency depends upon a proper supply of water. He shows how alcohol acts on this membrane by robbing it of water, and so producing thickening, shrinking, and inactivity. In order that these membranes should work rapidly and equally they require at all times to be charged with water to saturation.

The effect of alcohol on the liver is first to cause congestion and then to shrink and contract the capsular membranous portion, so as to compress the vascular and cellular, and so produce the hobnail liver in due time.

In the first stage of drunkenness an inordinate amount of arterial blood is sent to the brain; there is also dilatation of the capillaries; then comes the subsequent changes—there is venous congestion, and so in all the stages there is compression of nervous substance from disordered circulation.

From the effects of alcohol on the organs and tissues we can understand the different diseases it produces and develops. I need not speak of these.

The case then is that drunkenness is both a disease and a vice, and the question is, where do these begin? One party says that moderate drinking is no vice; it only becomes a vice when a person exceeds. The other party says that moderate drinking is the vice that leads to excess, which becomes disease.

I am not going to touch on the drunkard's bodily ailments and diseases, but state that alcoholism is a disease characterised by many and peculiar psychological symptoms, of which loss of will-power, more or less complete, is one. It is computed there are 60,000 drunkards in the United Kingdom, and as many more qualifying for the position, and every one of these were recruited from the army of moderate drinkers, which is an item against moderate drinkers. No drunkard became so intentionally, but through loss of will-power and inability to resist the temptation. This inability may be hereditary or acquired. We have all seen instances of this. Alcoholism is both an insanity and a cause of insanity. Authorities vary very much as to the percentage of admissions into Lunatic Asylums from drink. The late Lord Shaftesbury, who was for fifty years on the Commission of Lunacy, and for fourteen years its chairman, testified before a Parliamentary Commission that fifty per cent. were due to drink, and afterwards stated that sixth-tenths were due to no other cause; the Thirty-ninth Report of the Commission in

Lunacy put down 13·2, and many institutions vary. All authorities admit that a large number of admissions are from drink directly, but there is a worse phase—that a large number of lunatics are children of drunken parents. Some authorities put down one-half of the idiot class as such. There is a new school now that denies this, and says that acquired character cannot be transmitted to posterity. I cannot enter into this. At any rate, total abstinence is the safest and the only safe course. The inconvenience is very transient and the satisfaction very lasting.

It is by no means individuals of a low, vicious, or brutal type, or the idle, or those of a dull, inferior temperament, who are usually the victims of strong drink. Often it is the young, the beautiful, and the brave; the generous, the talented, and the good. We should, therefore, treat habitual drunkards quite differently to the way we do. The habitual drunkard should not be let at large; he should be put into confinement, where he could pursue his trade or calling, or earn money in some way. A Norwegian gentleman in this city told me they used to have a law in his Province of Norway that when a man was an habitual drunkard, any burgess could get another burgess to investigate the case—these burgesses were citizens sworn to maintain law and order, and were men of character and of certain property-worth. These two witnesses, if they found that the man was an habitual drunkard, and systematically neglected his family, could report him to an official, who was a kind of judge, and he then appointed two other citizens, independent of the two former and of each other, and on the evidence of the four the accused was without further trial put into prison for one year, and his family provided for by the State. The law worked well. I do not know if it is the same now; my friend has written to a lawyer in Norway to find out for me.

Alcohol is characterised by another symptom. Sometimes there is no depth of degradation to which the drunkard will not descend. I know of the case of a man of English blood who sold his two little girls to a Mussulman in a bazaar in India for a case of half a dozen bottles of brandy. But cases just as bad occur at home. You all know plenty of them. I need not dwell on the subject; it is part of the disease. There is a consensus of authorities who put down nine-tenths of all the crime in this country to alcohol. The late Baron Dowse, one of our

Irish judges, said that drink was at the bottom of nearly every case he had to try, and that even in cases where it did not appear on the surface, yet, on investigation, he could nearly always trace them to drink. In the army, owing to the splendid discipline, practically there is no crime apart from drink.

At a meeting at Sunderland, October 20th, 1887, Lord Randolph Churchill said that, "If, by some reasonable, wise legislation, we could diminish the fatal facility of recourse to the public-house, money would be diverted from the liquor trade and flow to other trades. All trades would benefit. Men would live in better houses, have better furniture, buy better food and better clothes, and provide better education for their children; and in every way that money could be diverted from the liquor traffic would every other trade improve." Sickness and mortality would be lessened, and health, happiness, and prosperity would bless the nation. We know that the poor will never depart from the land, but I hope poor-law relief will; and if the terrible drink traffic could be abolished, or even properly controlled, then every man would be able to stretch out the right hand of charity to his neighbour, which, certainly, he is not able to do now. Such a time would recall to us Lord Macaulay's lines—

> "Then none was for a party;
> Then all were for the State;
> Then the great man helped the poor,
> And the poor man loved the great;
> Then lands were fairly portioned;
> Then spoils were fairly sold—
> The Romans were like brothers
> In the brave days of old."

Mr. E. R. Barrett, in his prize essay, tells us that there is a story told in China about an Emperor who, 4,000 years ago, suppressed drink, and for three days it rained gold on the land. The same would literally be the case in the United Kingdom could the liquor traffic be suppressed. The effect would be immediate, and the very first week the change would be like a shower of gold in the streets, and every succeeding week would be increasingly more so, till the whole aspect of the country would be changed. Mr. Handel Corsham, M.P., stated that if the working man ceased to drink, wages would run up 20 per cent. the very next day, and Mr. B. Whitworth, M.P., stated that if the drink traffic were abolished the wages of the people of this country would go up at least 25 per cent. in three months. What the increase in trade would be, who could tell? It would be something almost incredible. No class would benefit in the long run so much as publicans. Their case now is terrible. Their mortality, to use the Registrar-General's words, is "appalling," the mortality of innkeepers and publicans being 52 per cent. above the mortality of all males. New paths of life would at once be opened to them with the immense impulse of trade. But it is not at home only that we see the terrible effects of drink. We have, as Canon Farrar says, girdled the earth with a zone of drink. We send our sons to the Colonies, and, for one who succeeds, how many go shipwreck, because the spirit-seller is there before him. Our missionaries bring the Gospel to foreign lands, but in the same ship will be the spirit-seller or his wares to undo the work of the missionaries. Where are the Maories of New Zealand? You can see where they lived, because the ruins of their little huts are there, and their little flower gardens, bordered with inverted bottles, reversed in funeral order, but the men who drank the contents are no more. Where are the Red Indians of North America? They tell you there that the white man brought the fire-water and the red man died. Our missionaries complain that while the Mahometans make converts in great numbers, both in Asia and Africa, the heathen will not become Christians owing to their drinking customs. Mr. E. R. Barrett states that, from 1883 to 1887, 30,000,000 gallons of spirits were imported into Africa, and that an analysis of some of it proved it to be of a very poisonous quality; but what can one expect when a pint bottle sells at Sierra Leone at fourpence halfpenny. Now, I do not mean to say that England is to blame for all this. I dare say other nations send spirits there too; but England boasts of her foreign missions, on which she spends £2,000,000, while she spends £140,000,000 in drink. I think the poor heathen get more strong drink than Gospel from us. But if we send trash to the natives of other countries, we get paid back in our own coin. They say there is more Hock drank in London alone than is grown in Hock countries in Europe, and three times as much Port drunk in England as is produced in the Port countries. Canon Hopkins, in a little work of his, gives the case of a great French vine grower who declared that he grew 400 pipes of wine on his estate, but sold 10,000. However, it is not with adulterations I have to do; it is with C_2H_6O.

The drinking habit in Belfast is pretty bad. The drink bill is £1,000,000. You cannot walk very far in the streets without seeing one man the worse for drink. And yet Belfast, in proportion to its wealth, is not as bad as other cities and towns in Ireland. The drink traffic is, perhaps, worse in Ireland than in England. All the rental of the land that there is so much fighting about is only £11,000,000, and the drink bill is nearly £12,000,000.

Some time since I was in one of the working districts of this city, and, talking to a policeman on the drink question, he assured me there were houses in that district in which there would be several pounds a week of earnings, and yet on Saturday night there would not be five shillings worth of property in the house. And this is not only true of that particular district, but applies to every working district in Belfast. What must be the moral and social position of such houses? Nothing but misery and squalor within. The late Charles Buxton, M.P., a brewer himself, stated that "there were 500,000 homes in England in which home happiness is never felt through the one vice of intemperance."

Now this is a matter that concerns ourselves very nearly. Many of our young members who have attained their profession at great labour and expense, who have not means or patience to settle down in the better-class neighbourhoods, elect to practice in the populous working districts—many of these gentlemen do an amount of work that should be remunerated by £600 or £800 a year, and do not get one-half, because the money goes to the publicans. In England it is not so; doctors go to the populous districts because they are lucrative, and when they have had enough of it they purchase fancy practices; but here the case is very hopeless. The late Sir Andrew Clark once stated—"He was often tempted to give up his profession and join in a crusade against strong drink." Medical men are often blamed for ordering drink, and, perhaps, we sometimes deserve it; but we must take cases as we find them, and a physician's hand should not be bound in the slightest. At the same time, my own belief is, that if we had no such liquors as whisky, gin, rum or brandy, but a recognised standard solution of alcohol, labelled alcohol poison, and placed on the chemist's shelf, it would answer all requirements and be very little used. However, my case is not against alcohol as a medicine but as a diet.

Sir Wm. Jenner struck the right note when he said—"There are times in the crisis of disease, as in the life of a man, when alcohol is useful; but it is as the whip and spur are to the racehorse, it tides over a difficulty by enabling him to put on a spurt, but is in no wise hay and oats."

We come now to the treatment of this disease. Much might be done by the women. If the homes of the artisan and working man were made more comfortable and attractive, and if the cooking was better, he would not be so fond of the public-house. Man is a docile animal and easily domesticated.

It has often been said that we cannot make a man sober by Act of Parliament, but the saying is untrue, Experience has proved that just in proportion as temptation is put in a man's way or out of a man's way does he become drunken or sober. See our own town of Bessbrook; the sober division of Toxteth, in Liverpool, with its 60,000 inhabitants, contrasted with the drunken division; St. Ives, in Cornwall, with its 7,000 inhabitants and one policeman, and nothing for him to do, and other places where the public-houses are not allowed.

The grocer's spirit licence has done much harm, especially to women. It has already made many of them inebriates; women, especially, should not be exposed to temptation. There are times of physical weakness which render them an easy prey to drink when once the habit is formed. Women who formerly would not be seen in a public-house cannot now buy their necessaries without being exposed to temptation. The downfall with them is very rapid, and the outlook for the children very bad. This law should be repealed. Then the tied-house system is a bad business; as Mr. F. A. M'Kenzie says in his work, published this year, there are two kinds. In the one the brewer and distiller start the publican in business by advancing him money, but he is tied to get his beer and spirits from them, and they can give him any stuff they like. In the other kind, the brewer or distiller owns several public-houses and puts managers in them, whom they can remove if they do not push the business. This causes competition, and the public suffer.

Finally, there are the two large projects for controlling the trade before the country. The Permissive or Local Veto Bill, and the Bishop of Chester's Scheme on the Gothenberg and Bergen lines. Both have their advocates. Time will not permit me to go into these. I have just touched upon some of the salient points of this great Drink question. Some points I have not alluded to—as the insurance aspect, expectation of life, and many others. The Biblical side I leave to the Theologians with this one remark—that it seems to me the books of the Bible were written in a land of vineyards. Drunkenness was not the prevailing vice, as it is not in vine-growing countries at the present day—the people, no doubt, preferring the pure juice of the grape to the fermented; and I take it that when wine is used in a good sense or bad sense in Scripture it is for the most part the pure juice of the grape or the fermented that is implied. We know the art of distillation was not discovered till the 11th century; so they had not spirits in those days as we know them.

This great work—the control of the Drink Traffic—will proceed. Are we as a profession to be in the van or wake of the movement? In this Society there is a large percentage of total abstainers. Others do not see it in exactly the same light as we do, but of one thing I am certain—there is not a single member who would not receive with joy and satisfaction any movement that would emancipate the artisan and workingman from the bondage of strong drink.

ART. XXI.—*A Case of Small-pox and its Lessons.*[a] By JOHN W. MOORE, M.D., M.CH., B.A. Univ. Dubl., F.R.C.P.I.; Physician to the Meath Hospital, &c.

EARLY on Friday, September 21, 1894, I was asked to visit a professional friend, who wrote to me as follows:—"I have been in bed the past two days—some sort of feverish attack—and would like you to see me."

CASE.—On visiting the patient about 1 p.m., I found that after some days of ill-health, during which he felt out of sorts and lost his appetite, he had fallen acutely ill on the evening of Tuesday, September 18. The first symptoms were chilliness, pains in his limbs and back, and nausea. The temperature rose quickly and reached 103·2° on Thursday evening, the third day of the attack. He was seen and prescribed for by Dr. R. S. Wayland, who looked upon the attack as one most likely of enteric fever.

At the time of my visit, the tongue was thickly coated with a yellowish, offensive fur, the throat was red, pulse 84, temperature 102·3°. There was a good deal of sweating. A local and intense scarlatiniform rash spread from the axillæ outwards across the pectoral regions, embraced the flexures of the elbows, and radiated from the groins upwards over the abdomen for some inches and downwards half way towards the knees, as well as backwards across the buttocks. The spleen was only slightly, if at all, enlarged. On the abdomen three or four small circular rose-spots, firm and resistant to the touch, were scattered far from one another. Across the front of the wrists, also, a few minute vesicles were observed. The urine was clear and free from albumen. The patient himself believed the attack was one of scarlatina, but such an assumption was negatived by the slowness of the pulse, the trivial nature of the throat affection, and the local distribution of the rash. While not excluding the diagnosis of enteric fever, the sudden onset of the attack, the absence of marked enlargement of the spleen, and the presence of a local scarlatiniform rash, which at once struck me as of diagnostic importance—not less positive than negative—led me to the conclusion that the disease was in reality small-pox.

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[a] Read before the Section of Medicine of the Royal Academy of Medicine in Ireland, on Friday, November 16, 1894.

A few questions, cautiously worded, elicited the information that on Saturday, September 8—exactly *eleven days* before the initial symptoms showed themselves, Dr. A. B. saw a case of small-pox in the stage of invasion. He continued in attendance until Thursday, September 13, when the patient was sent to hospital. The patient, and also her infant child, died afterwards of the disease. He saw another case of small-pox on Saturday, September 15, but only on one occasion.

At our consultation, I said to Dr. Wayland that it was easier to say what the disease was not than what it was. It was not scarlatina. It might be either enteric fever or small-pox. I was inclined to think it was the latter.

The temperature rose to 105·2° the same evening and fell only to 104·0° the following morning. The conjunctivæ were deeply injected, and the face was flushed. There had been very little sleep. To relieve these symptoms and also under the belief that the case was one of small-pox and that local depletion would lessen the eruption about the face, I applied a leech behind the ear and allowed the bite to bleed into a poultice for twenty or thirty minutes. The patient had been taking salicylate of sodium to reduce temperature and relieve the distressing rheumatoid pains. This remedy was now discontinued and sulphurous acid was prescribed for internal use.

On Saturday morning, September 22, the fever still ran high. A single vesicle had appeared on the left side of the velum palati. The vesicles about the wrists had grown larger. The "rose-spots" on the abdomen were more numerous and harder. I said to Dr. Wayland that there was now little doubt as to the nature of the malady, which was almost certainly small-pox. In order, however, to set the question of diagnosis definitely at rest, we agreed to meet again at night. This we accordingly did. There was now no room for doubt. The true rash of small-pox was coming out on the palate, face, wrists, trunk, and extremities. It was profuse within the limits of the initial erythema—about the axillæ, elbows, groins, buttocks, and feet. The pulse was 96, and the temperature had again risen to 105·2°. Two grains of calomel, which had been given after our morning visit, acted freely, with the aid, however, of a simple enema. As Dr. Wayland was attending Dr. A. B.'s patients, some of whom were ladies shortly expecting their confinement, he now surrendered the case into my hands.

As my attention had for some time previously been riveted on the treatment of small-pox by the exclusion of the chemical rays of the solar spectrum, I determined to test the method in the present instance. It happened by chance that the large double window in the sick-room was covered from top to bottom with a deep-red thick curtain. This was kept constantly drawn, while another red curtain was hung entirely across the folding doors communicating with a spacious front drawing-room, in which one of the windows was kept widely open both by day and by night. A brisk fire in the grate further secured the freest ventilation in both the sick-room and its ante-chamber. During the remainder of his illness, the patient repeatedly expressed the comfort which the subdued red light afforded him.

On Sunday, September 23 (sixth day), the fever gave way quickly. Sleeplessness was still a prominent symptom. For its relief, an opiate with bromide and digitalis was ordered and acted with partial success. As the rash was in places dark and showed signs of hæmorrhage into the vesicles (*Variolæ hæmorrhagicæ pustulosæ*, of Curschmann), I ordered the following mixture:—

℞. Tinct. Ferri Perchloridi, ʒij.
Acid. Phosphoric dil., ʒiss.
Glycerini, ʒiiss.
Tinct. Aurantii Recentis, ℥ss.
Aquæ Chloroformi, ad ℥vj.

M—ft. mistura. *Signa*: "One-sixth part every sixth hour."

As the first sound of the heart was not strong I ordered a claret-glassful of good burgundy to be taken every six hours alternately with the iron mixture. This treatment was persevered in for several days, the interval between the doses of both medicine and wine being soon extended from six to eight hours.

A sharp secondary fever followed the remission of temperature observed on the sixth and seventh days. But the thermometer rose only to 103° on the evening of the ninth day, thus falling short of the fastigium of the primary fever by 2·2°. The rash never became markedly pustular, although the contents of the vesicles were lactescent and opaque. The local treatment consisted in the smearing of the face and other parts with carbolised vaseline (2½ per cent. in strength), followed by free use of boric acid as a dusting powder. Troublesome pruritus about the scrotum was at once relieved by painting over the part with a ten per cent. solution of hydrochlorate of cocaïn. There was no albuminuria at any time. The tongue gradually cleared, and sleep and appetite returned. From the eleventh day convalescence went on apace. The feet became very sore for a time, and the skin was shed in immense flakes, leaving considerable ulceration and pitting afterwards. Linimentum calcis (Carron oil) was freely applied on lint, and gave great and immediate relief. Warm baths were begun on the ninth day, and were continued to the close of convalescence every night or every second night.

Very strict precautions were taken to prevent the spread of the disease. No one entered the sick-room for several weeks except the patient's wife, the nurse, and myself. Both wife and nurse were revaccinated as soon as the nature of the illness declared itself. The shed scales of epidermis were carefully collected and burned. Soiled bed linen and personal attire, as well as towels, &c., were immersed in strong solutions of Jeyes' disinfectant fluid before removal from the sick-room. The evacuations were also, as far as possible, disinfected as soon as passed. In a word, the hygiene of the sick-room was kept up to the highest standard. The accompanying temperature-chart is a very typical one of semi-confluent small-pox.

Remarks—The duration of the period of incubation was definitely ascertained to be *eleven days* in this case. It is interesting to note that the poison was taken into the system quite unconsciously. At the time the disease was contracted, no suspicion of exposure to the virus of small-pox was entertained. Again, there was a long stage of invasion in A. B.'s case. The prodromal fever began on Tuesday. The rash did not show itself until Friday (the fourth day), and even then it was very slow in developing. The case, no doubt, was one of discrete small-pox, but the rash was wonderfully profuse within the limits of the prodromal exanthem and on the feet. In these situations the skin was utterly destroyed. Pustulation may, at the same time, be said not to have occurred at all; and this leads me to speak of the treatment of small-pox by red light—a mediæval method which has been unexpectedly and quite recently revived in a very earnest way.

As an introduction, I may be permitted to quote a passage which I wrote some three years ago, when discussing the curative treatment of small-pox[a]—"In the fourteenth century flourished

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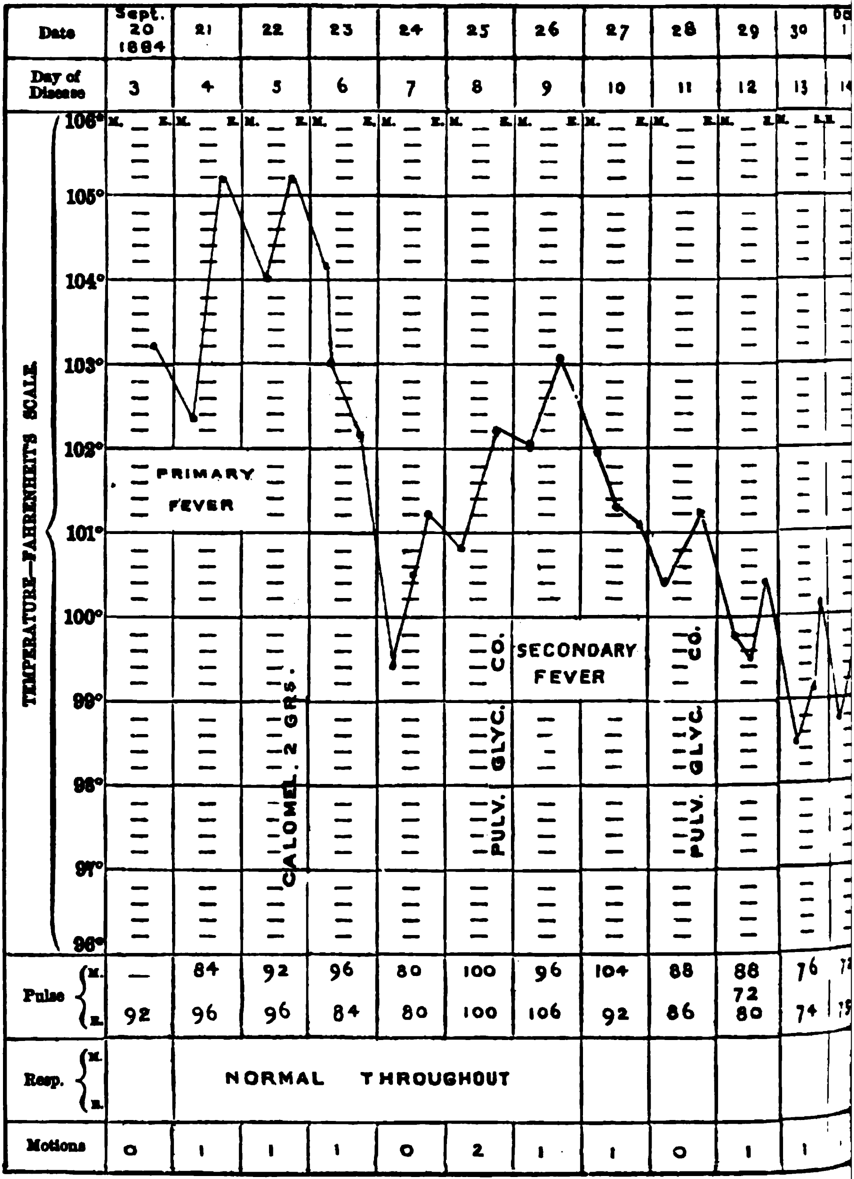
[a] "Text-book of the Eruptive and Continued Fevers." Dublin: Fannin & Co. 1892. Pages 113 and 114.

CLINICAL CHART OF TE

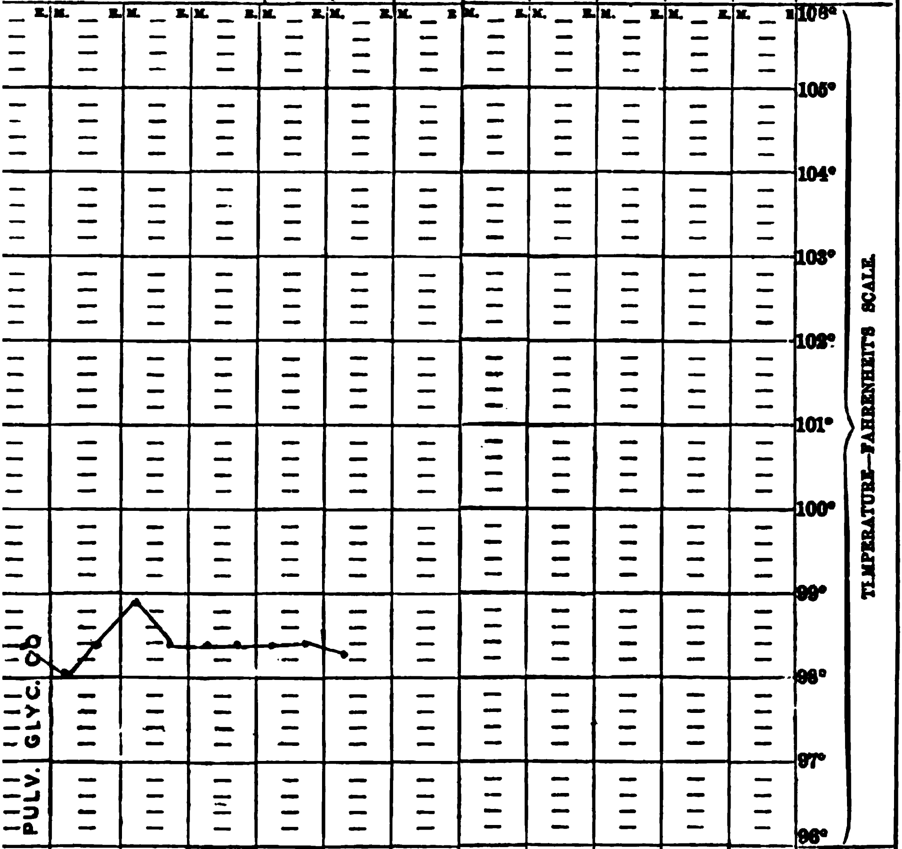
Name, A. B. *Age*, 3



ATURE, PULSE, RESPIRATIONS, &c.

Disease, Variola. *Result*, Recovery.

3	4	5	6	7	8							**Date**
16	17	18	19	20	21							**Day of Disease**



70	72	78	76	76	72							M. **Pulse**
72	74	76	76	74								E.
												M. **Resp.**
												E.
0	2	—	—	—	—							**Motions**

John of Gaddesden, author of a curious book entitled *Rosa Anglica*, court physician of the day, but 'a very sad knave,' as Sir Thomas Watson calls him. This representative physician of the Age not only put the unhappy small-pox patient on a 'hot regimen,' administering wine and cordials, piling on bed-clothes, and jealously excluding every breath of fresh air from the sick-room, but *surrounded the half-suffocated victim with red curtains, red walls, and red furniture of all kinds—for in this colour there was, he pretended, a peculiar virtue.*

"To the celebrated Thomas Sydenham, who lived in the seventeenth century, belongs the credit of substituting for this barbarous and disastrous system of treatment the opposite or 'cooling regimen' in small-pox, and this practice is pursued to the present day with the happiest results."

In quoting these paragraphs, I have ventured to give emphasis to one passage by the use of italics—it is that in which reference is made to the treatment of small-pox by red light. So far as this is concerned, after the lapse of five centuries, the therapeutic skill and clinical acumen of John of Gaddesden are at last vindicated, and with the poet Chaucer we may say:—

> "For out of the old fieldes, as men saithe,
>   Cometh all this new corn from yere to yere,
> And out of old bookes, in good faithe,
>   Cometh all this new science that men lere."

In a paper in the *Lancet* for June 29, 1867, entitled, "How to prevent pitting of the face by small-pox in persons unprotected by vaccination," Dr. C. Black, of Chesterfield, came to the conclusion "that the complete exclusion of light from the eruption of small-pox in persons unprotected by vaccination effectually prevents pitting of the face." From his knowledge of the influence of *light* on the growth and development of both plants and animals, and of the destructive action of oxygen on diseased tissues, Dr. Black determined to exclude both these agents from the faces of his small-pox patients. The results were eminently satisfactory.

In the *Lancet* for February 4, 1871, Dr. J. H. Waters, of London, published a short paper on the "Action of Light in Small-pox." His observations were apparently made quite independently, and led him to assert that "if white light is entirely excluded from the patient, there is no doubt the disease is less severe; by white light I mean daylight. The room being so darkened that not even a single ray can enter it, and a candle being used instead, the effect is to arrest the disease at the papular or vesicular stage; it never becomes purulent . . . there is no intense pain; even the itching is trifling; and the smell, so annoying to all concerned, is, if not altogether removed, so diminished as to be easily borne. The earlier in the disease the room is darkened, the more certain will the effects I have named follow; but if during the stages of primary fever or eruption the white rays of light are admitted, only for a short time, it is sufficient to cause great mischief, and to nullify to an immense extent all that has been before done."

In a subsequent paper, published in the *Lancet* for April 22, 1871 (page 534), Dr. Waters observes:—"In disease nature frees herself from the morbific poison by the action of the glands, and of these, perhaps, the most used are the sudoriparous and the sebaceous. It is by these the poison is eliminated in small-pox; but by their excessive action inflammation is set up, the nerves become hypersensitive, they magnify the effect of external stimulants, and by reflex action the inflammation of the part is increased, when thus exposed to what in ordinary circumstances would be but healthy and desirable stimulation; the reflex inflammation preventing the natural elimination of the disease, and the two causes increasing its severe symptoms."

In the *Lancet* for July 1, 1871 (page 9), Dr. W. H. Barlow, of Manchester, bears additional testimony to the usefulness of the exclusion of light in the treatment of small-pox. He recalls an experiment recorded in the *Lancet* of August 24, 1867, where part of the face of a small-pox patient was covered with a warm solution of coloured gelatine (to exclude the actinic rays), the rest of the features being left exposed to the full action of the light, with the result of showing a marked contrast between the two portions.

Dr. Barlow wisely advocates the necessity of exercising care and judgment in the application of the method of treatment by exclusion of light, suggesting that only the actinic rays of the solar prism should be cut off, in order to avoid that depressing effect upon the mind which total darkness would probably cause, and which seems to Dr. Barlow to have much to say to the fatal result. Again, "we must not forget that the outward manifestations" of small-pox, which are shown to be controlled by the exclusion of light, "do not form the whole of the disease, and that, grave as may be the consequences of their unchecked career, there are more serious forces behind, for which these form the outlets, and as it were the safety-valves of the system."

According to the *Lyon Médical* of June 12, 1892, Gallavardin,[a] had during seven years seen marked effects from the treatment of small-pox in the dark, but only when it was thoroughly carried out. Suppuration and pitting were prevented by the treatment.

In a suggestive paper on the effects of light upon the skin,[b] Dr. Niels R. Finsen, Prosector of Anatomy, Copenhagen, observes that our knowledge of this subject has greatly increased within recent years. It was formerly supposed that it was the solar heat rays which were especially injurious in the so-called solar-eczema, which the name *Erythema-* or *Eczema-caloricum* also shows. In the same way pigmentations were supposed to be due to the caloric rays, but to be independent of wind and weather.

From the investigations, especially of Unna of Hamburg,[c] Widmark of Stockholm,[d] and Hammer of Stuttgart,[e] it has, however, been now absolutely determined that it is exclusively the chemical rays in sunlight, especially the ultra-violet rays, which are active in causing both pigmentation and solar eczema. Hammer and Widmark have shown in their papers that precisely the same phenomena may be produced by strong electric light, since this light is particularly rich in chemical rays. Against heat as the active agent the fact, for example, detailed by Widmark about Arctic travellers, and by Hammer about tourists on glaciers, tells in the clearest way. These individuals, even with the temperature below freezing point, may suffer severely from light-erythema, which is due to the strong reflection of the light from the ice-fields.

The view that it is the chemical and not the caloric rays which are active, and also that the skin affection induced by strong electric light is identical with solar erythema, was first advanced by Charcot in 1859,[f] but was not proved scientifically until Widmark's experiments in 1889.

The so-called chemical rays, which are essentially situated in

[a] Traitement de la variole par l'obscurité solaire.

[b] Om Lysets Indvirkninger paa Huden. Hospitalstidende, 4 Række, Bd. I., No. 27. Kjöbenhavn, 5 Juli, 1893.

[c] Ueber das Pigment der menschlichen Haut. Monatsheft für prakt. Dermatologie. 1885. Page 285.

[d] Ueber den Einfluss des Lichtes auf die Haut. Hygiea. Festband, No. 3.

[e] Ueber den Einfluss des Lichtes auf die Haut. Stuttgart, 1891.

[f] Comptes rendus de la Société de Biologie, 1859.

the blue and violet, and especially in the ultra-violet, part of the spectrum, are the most refrangible of the rays of light; in this area the chemical activity is strongest, the caloric activity is weakest. The converse holds good in the other end of the spectrum, where are found the red and ultra-red rays which are the least refrangible. Here the caloric activity is greatest and the chemical activity least.

Dr. Finsen does not appear to have made a practical trial of the method of treating small-pox suggested by him at the close of his paper—that is, by complete exclusion of daylight or, what would doubtless have the same effect—by the use of tightly-closing red curtains, or windows of red glass. In the number of the *Hospitalstidende* for September 6, 1893, however, he writes an interesting letter on the "Treatment of Small-pox," in which he states that in an epidemic which prevailed at Bergen in the summer of 1893, Dr. Lindholm, Medical Officer of Health (Stadsfisikus), and Dr. Svendsen, Visiting Physician of the Municipal Hospital, had tried his method with gratifying success. In a letter dated August 2, Dr. Lindholm wrote to Dr. Finsen as follows:—"I have the pleasure to inform you that the proposed treatment of small-pox seems to have an excellent effect, as the œdema quickly subsides and suppurative fever fails to appear."

Dr. Svendsen published an account of this epidemic in the Bergen *Medicinsk Revue* for October, 1893. He bears eloquent testimony to the efficacy of the treatment of small-pox by exclusion of the chemical rays of light. In his experience the vesicles dried up without becoming purulent; in this way suppurative fever was avoided, so that the disease became less dangerous, less protracted, and less painful owing to the absence of ulceration. Furthermore, pitting did not occur. Dr. Svendsen thus expresses himself:—"The clinical records of the patients treated according to this plan show the following differences: *The Suppuration stage—the most dangerous and most troublesome in Variola—was slurred over; no rise of temperature, no œdema, and so on, occurred. The patients passed at once from the vesicular stage, which seemed to me somewhat protracted, into that of convalescence, and were saved from the ugly pitting.*"

Dr. Svendsen describes a couple of interesting control-experiments which he made. He sent a patient out into the daylight after desiccation had occurred everywhere except on the hands, on which there were still a number of vesicles, with the result that these vesicles passed on into suppuration, and the patient had small, not deep, pits on the back of his hands. A second patient was subjected to the same procedure with a like result.

More recently the method has been tried, with less striking though still encouraging results, by Professor Juhel-Renoy,[a] of Paris. He believes that the mere fact of protecting the patient from the action of the chemical rays of sunlight cannot *prevent* suppuration, but it lessens suppuration—"c'est un procédé d'atténuation de la suppuration"—it is capable at all events of rendering the post-variolous scars less perceptible and less disfiguring. In any case, such a result should not be despised, and would certainly be appreciated by the patients. Beside, the treatment is easily carried out. Simple red window curtains suffice to absorb the chemical rays of the solar spectrum.

Lastly, Professor C. Feilberg, Senior Physician at the Oresund Hospital, Copenhagen, reports[b] the results obtained by him in 14 cases of smallpox treated by exclusion of the chemical rays of daylight in a sporadic outbreak in Copenhagen, in January and February of the present year. His paper is illustrated by two photographs and a series of temperature charts, which certainly show a striking modification of both rash and temperature, even in an elderly patient, vaccinated when a child, and in an unvaccinated girl of six years. Dr. Feilberg points out that Dr. Finsen based this method on the train of thought that, if the chemical rays (blue and violet) can induce inflammation in *healthy* skin, they are all the more likely to possess the power of acting injuriously on *unhealthy* skin. He is of opinion that we should especially look for such an effect in variola, from the fact that the most numerous and deepest scars are, as a rule, found on the face and hands—that is to say, on the parts most exposed to daylight. We should, therefore, exclude the chemical rays from the sick room.

That our Scandinavian colleagues, whose views I have quoted at some length, are reasoning from sound premises cannot be gainsaid. At the recent meeting of the British Medical Association, held at Bristol, Dr. Robert L. Bowles, M.D. Lond., F.R.C.P., of Folkestone, read a singularly able and interesting paper on the influence of solar rays on the skin. It will be found in the *British Medical Journal*, Sept. 29, 1894, page 694. This paper bears so directly on the subject I am discussing, that I do not hesitate to lay it largely under contribution. Dr. Bowles explains that—

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[a] Bulletins et Mémoires de la Société médicale des Hôpitaux de Paris, 14 Dec., 1893.

[b] Behandling af Kopper med Udelukkelse af Dagslysets kemiske Straaler. Hospitalstidende, Kjöbenhavn, 4 Juli, 1894.

"A beam of light as it arrives from the sun appears elementary and white; but we know that it is a compound, and may be separated into its several elementary colours and properties by passing it through a glass prism, and thus a solar spectrum is formed. At the red end there is a dark portion representing waves of greater length than those at the violet end; the former represent the dark or long heat rays, and the latter the light and so-called actinic or photogenic rays. The former indicate what we, by our senses, know as heat; the latter those phenomena of light and of a chemical character produced by light, as well as by invisible rays extending beyond the violet, the properties of which are best displayed by the effects of photographic art, and by those truly marvellous changes in the vegetable kingdom connected with the formation of chlorophyl and the deposition of starch. This beam of light, then, is a compound not only of colours, but also of three different forms of rays—heat rays, light rays, and chemical or photogenic rays—all three of different wave lengths, and possessed of different properties, but all three in common full of 'energy,' excitors of electro-magnetic action, and convertible the one into the other, so that a beam of light has come to be regarded as 'radiant energy.'

"'Transparent substances transmit some of these rays and stop others; for example, rock salt transmits all forms of rays, while white glass is athermanous—that is, it does not transmit the dark heat rays (those long wave rays at the red end of the visible spectrum), whereas the light rays and chemical rays pass freely through. On the other hand, there are substances, such as iodine dissolved in bisulphide of carbon, which stop the light and transmit the heat and chemical or photogenic rays, facts of vast importance when considering the effects of sun on plant and animal life."

Dr. Tyndall first drew Dr. Bowles' attention to the very interesting and significant fact that he was never more burnt on the Alpine snows than he was whilst experimenting with the electric light at the North Foreland lighthouse, where there was no heat sufficient to produce such an effect.

From many interesting facts mentioned in his paper, Dr. Bowles draws the following conclusions:—

"1. That heat *qua* heat is not the cause of sunburn.

"2. That there is strong evidence for believing that it is caused by the violet or ultra-violet rays of light reflected from the snow, which reflected light is not necessarily of the same quality as that which is incident.

"3. Captain Abney finds that the violet or ultra-violet rays are very strong at high altitudes, and believes that altitude has much to do with sunburn.

"4. That altitude alone does not explain sunburn, for one may not be sunburnt on rocks, say at 10,000 feet, and yet be immediately affected on descending to a glacier 3,000 or 4,000 feet lower down.

"5. That sunburn and snow blindness arise from similar causes, and that sunstroke may be associated with them.

"6. That rays from the electric light produce much the same results as sun rays reflected from snow.

"7. That the bronzing of the skin and the browning of the wooden chalets are probably produced by rays reflected from snow.

"The varied experiences just related would probably all be readily explained by a few simple physical laws. For example, glass is athermanous to the dark or long heat rays which arrange themselves at the red end of the spectrum; but glass, on the other hand, transmits the light rays, which are readily decomposed by objects on the farther side of it, and there degraded into long heat rays, which are now radiated as sentient heat. This is well illustrated in a greenhouse, The light rays are alone admitted through the glass, and practically all the energy in the house is degraded and then radiated as heat rays from the earth and other objects within the greenhouse which have been agents for the degradation of the 'light energy' into the heat form. After a similar fashion the transparent epithelial layer of the fair skin will transmit the light rays to the nerves, vessels, and other tissues immediately beneath; the light rays would there be degraded into dark or long heat rays, and excite in the very vessels themselves those primary actions which lead to inflammation and its consequences. Black skins on the other hand, and various pigments would absorb these light rays, and stop their transmission to those vital parts which may be excited to inflammatory action.

"If the sun's rays will produce sunburn, erythema, eczema solare, inflammation, and blistering, it is clearly capable of producing deep and intractable ulcerations of a low and chronic nature. It only requires a peculiar susceptibility in the individual—that unknown quantity, 'idiosyncrasy'—to allow the graver local changes to occur."

In conclusion, I am happy to be able to state that the small-pox patients treated in Cork-street hospital during the present outbreak of this disease in Dublin, have had the advantage, owing to the forethought and skill of Dr. John Marshall Day, the Resident Medical Officer, of being subjected to the red-light method of treatment. Dr. Day has been good enough to furnish me with the following particulars:—

"Fever Hospital and House of Recovery,
"Cork-street,
"Dublin, *October* 18, 1894.

"Dear Dr. Moore,—Since we used the red-coloured blinds I find we have not had any eye trouble the patients rest well; the colour is soothing. I cannot say positively whether the pitting be less, but I am of opinion that it is. It obviates putting on bandages over the eyes and masks on the face. The first cases we had we kept them most of their time in the hospital in the wards, and they certainly turned out very well, although severe confluent cases. The face was not nearly so discoloured as in cases later on that had to be sent early out of the wards to the convalescent department. Another point is that where you have the red blinds constantly down you are not troubled nearly so much with flies.

"Yours sincerely,
"J. M. Day."

This is not the place to enter upon a history of the present outbreak of small-pox in Dublin, But I may be allowed to remark that it appears to be strictly obeying the law of the seasonal prevalence of the disease. When the mean temperature of the air falls below 50°, small-pox has a tendency to assume a distinctly epidemic form. This year the mean temperatures of successive weeks after the middle of September were, up to the present—56·2°, 52·0°, 50·7°, 54·1°, 45·5°, 48·3°, 52·1°, and 49·6°. The number of admissions of small-pox patients to hospital in the same weeks were respectively—13, 19, 8, 8, 28, 15, 28, and 37.

THE TREATMENT OF DISEASE WITHOUT ALCOHOL.

Sir B. W. Richardson (*Asclepiad*, No. 41) gives a description of his treatment of cases in the London Temperance Hospital; he uses, practically, no alcohol, and does not allow the routine administration of ether or any drug as a substitute. He writes:—"My plan has been to avoid temporary stimulation and to give steady support, trusting to the natural swing-round towards restoration, under careful feeding, continuous warmth, breathing of warm air, the horizontal position, and, as medicinal measures, such remedies as soothe and bring rest, like chloral, opium, the bromides, and digitalis. To my mind nothing could have been more satisfactory than the system thus described. To any one who has witnessed the recovery from apparently hopeless conditions under this mode of treatment, minus the use of alcohol, the results at first sight would be almost startling."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Twenty-second Annual Report of the Local Government Board, 1892–93. Supplement containing the Report of the Medical Officer for 1892–93. London: Eyre and Spottiswoode. 1894. 8vo. Pp. xxxix and 462.

With such a man at the helm as Dr. R. Thorne Thorne, this Report to the Right Honourable the President of the Local Government Board (for England), with its appendices, is sure to reward and instruct the reader.

"In accordance with custom," Dr. Thorne Thorne proceeds in his Report to give some account of the work carried out by the Medical Department of the Local Government Board, in the direction of promoting public health, both as regards its administrative duties and the scientific investigations with which it is entrusted.

Under the former heading, the Medical Officer first alludes to vaccination and revaccination. From the returns made by Vaccination Officers it appears that of children whose births were registered in England and Wales in 1890, 11·3 per cent. remained finally not accounted for as regards vaccination, the percentage for London being 13·9, and for the provinces 10·9. These figures are very significant, and, we may add, alarming, affording, as they do, an indication of a steadily increasing number of persons among the younger population who are altogether unprotected against small-pox. Passing references follow—to the work of the Royal Commission on Vaccination, the inspection of public vaccination under the several Acts of Parliament relating to the subject, and to the statistics of the National Vaccine Establishment and of the Animal Vaccine Station at 95 Lamb's Conduit-street, London.

Other administrative business of the Medical Department had reference to local inquiries into outbreaks of enteric fever in the Tees Valley, at Rotherham and its neighbourhood, and at King's

Lynn, and of typhus at Wigan and in the neighbouring parts of Ince-in-Makerfield. To this last we shall return. Allusion is also made to the important fact that the Local Government Board in 1889 undertook, at the suggestion of Dr. John Tatham, at the time lately appointed Medical Officer of Health for Manchester, the weekly tabulation of returns of notified cases of infectious diseases in several large urban districts. In January, 1888, Dr. Tatham, then Medical Officer of Health for the borough of Salford, commenced such a compilation. So much has this valuable work increased, that weekly returns are now received by the Board from 122 urban districts, including the English metropolis, giving certain of the details embodied in the certificates of notification of the different infectious diseases which have been received by the several authorities. Dr. Thorne has tabulated for 1892 both the notified attacks and the registered deaths from the several notifiable diseases for each quarter of the year in the case of 81 large urban districts. His highly suggestive Table appears in Appendix A, No. 11, to the Report now before us. He well observes: "After a series of years such tabulations may come to afford some useful indications as to the proportion of fatal to non-fatal attacks, and as to the relation of season both to the occurrence of some of the diseases specified, and also to their fatality."

Among the special subjects which engaged the attention of the Department presided over by Dr. Thorne was the invasion of Europe by cholera in 1892. The story of the origin and progress of the outbreak is set out in a Report by Dr. Barry (Appendix A, No. 12). Many of the facts detailed in this most comprehensive history of the last great cholera epidemic are appalling. The vastness of the tragedy may be inferred from the terrible fact that by the close of 1892, 331,077 attacks and 151,626 deaths had been recorded in European Russia, and 134,758 attacks with 69,423 deaths in the Caucasus. The records from Russia in Asia showed 89,199 attacks and 46,841 deaths. In Hamburg alone 16,956 attacks and 8,605 deaths occurred between August 16th and the middle of November. Altona, its great suburb, suffered only in a very minor degree, although it practically forms one continuous community with Hamburg, and draws its drinking water from the Elbe at a point below that at which the river is befouled by the sewage of well-nigh 800,000 people resident in Hamburg and Altona. Dr. Thorne quotes Professor Koch's opinion that the remarkable immunity enjoyed by Altona was due to the fact that the Altona water, which was filtered through sand and gravel, was so far freed from the micro-organisms suspended in it by means of the slimy layer of mud, &c., which formed on the surface of the filtering area, as to reduce the risk of mischief to a minimum.

Cholera reached England on August 25th, and before the end of October, 35 cases, of which 11 proved fatal, had been imported. Of the 35 cases, 28 reached England from Hamburg direct, 1 from Hamburg *viâ* Antwerp, 3 from Antwerp, 2 from Rotterdam, and 1 from Solombola, near Archangel. Thanks to the vigorous action taken with regard to these cases, Dr. Thorne is able to record that *in no instance during* 1892 *did the disease extend to any person other than those arriving from abroad.* How so conspicuous a triumph for Preventive Medicine was gained is briefly told, with characteristic modesty, by Dr. Thorne in a paragraph headed "English Cholera Administration" (page xxii).

The system of cholera prevention which has been in operation in England for some 40 years is briefly the following:—

Port and Riparian Sanitary Authorities have imposed on them the duty of so dealing with ships, either infected with cholera or arriving from places infected with cholera, that the sick shall be placed in hospital; that those suspected of cholera shall be detained for a limited period, so that the nature of their illness may be ascertained; that certain sanitary measures, such as the efficient disinfection of vessels, shall be carried out; and that, prior to the landing of healthy persons, their addresses at the places of destination to which they are travelling shall be obtained.

Should cholera succeed in passing this outer line of defence, the Local Government Board trust for the prevention of its spread to the general sanitary administration of the country. Sanitary districts, to which the hitherto healthy passengers are travelling, have communicated to them the addresses of these persons. The system of compulsory notification of infectious disease (very generally in operation) supplies to each local authority immediate means of ascertaining whether any cholera has developed in their district, and, cholera having been discovered within their jurisdiction, Inland Sanitary Authorities have a corresponding duty to that devolving on Port Authorities. That duty can be properly performed only by having at hand means for immediate isolation of the sick and disinfection of their belongings, and by the maintenance of such a standard of wholesomeness as will enable the authority so to deal with any case of cholera that may reach their district as to prevent the spread of the disease.

Dr. Thorne points out very clearly that a return to quarantine restrictions on the part of the United Kingdom could, even at this date, hardly fail to have a most injurious effect in retarding sanitary progress, and the effort to make the system in any way effectual would lead to the application of restrictions on people and on commerce which would be altogether intolerable. Writing in his Annual Report for 1865, Sir John Simon used these memorable words:—"Were the country ever so ready to endure those extreme restrictions without which the whole thing (*i.e.*, quarantine against cholera) is fruitless and absurd, the means for imposing them do not exist." Dr. Thorne rightly holds that these weighty words "are even more applicable to the present circumstances of England than they were to those which obtained when they were written some thirty years ago."

In connection with the topic of quarantine, Dr. Thorne alludes next in his Report to the International Sanitary Conference which was held in Venice, in January, 1892, and which had for its principal objects the obtaining of a diminution in the quarantine restrictions imposed on vessels passing from the Far East into the basin of the Mediterranean; the securing for certain classes of suspected or infected vessels that they should be free to pass the Suez Canal "in quarantine"; and the reconstitution of the Maritime, Sanitary, and Quarantine Board of Alexandria. This Conference was the fifth international gathering which had met for the purpose of controlling the spread of cholera from Asia into Europe. The first was held in Paris, in 1852; the second at Constantinople, in 1866; the third at Vienna, in 1874; and the fourth at Rome, in 1885. On each of these four occasions progressive diminution in quarantine restrictions was proposed, but the proposals always fell far short of what was regarded by Great Britain as either sufficient or reasonable, and so no agreement was arrived at, or embodied in an International Convention. At Venice, however, on January 30, 1892, the delegates of the majority of the Powers present signed a Convention embodying the conclusions of the Conference. The British delegates were not authorised to sign the instrument, as Her Majesty's Government objected to certain provisions included in the Convention, and notably to one relating "to the detention in a lazaretto of healthy persons on the alleged ground that they had been in contact with the sick." Later on, however, a successful attempt was made to settle the differences, which prevented the acceptance by the United Kingdom of the Convention signed at Venice. A meeting of representatives of the Austro-Hungarian, French, and British Governments was convened in Paris, where it took place on May 19th, 1892. Dr. Thorne himself acted, at the desire of the Marquess of Salisbury, as British Technical Delegate. After a series of meetings, a Procès-Verbal was signed on June 9, embodying a series of modifications in the Convention. To these modifications all the European Powers who signed the Venice Convention gave their assent, and the Convention came into operation on November 1, 1893.

Perhaps the most important part of the Medical Officer's Report is that relating to the auxiliary scientific investigations which were carried out during the year with which the Report deals. We can do little more than mention their headings. Dr. E. Klein, F.R.S., extended his study of the ætiology of infectious diseases to the micro-pathology of enteric fever. He concludes that the "typhoid bacillus" is a separate and distinct species from the Bacillus coli communis. For the rest, Dr. Klein, while provisionally accepting the typhoid bacillus as the essential cause of enteric fever, incidentally notes directions in which this microbe does not fulfil all the conditions demanded by some authorities of the living particulate cause of this disease. In no circumstances of artificial culture has Dr. Klein found it capable of producing spores, and when it is experimentally introduced into the body of rodents, enteric fever is not produced but only a mere septicæmia.

Dr. Klein also experimented with protective inoculations, especially in respect of cholera. In Appendix B, No. 3, also, will be found a full account of his researches into the ætiology of variola and vaccina, or vaccinia, and of his experimental testing of the inter-relations of these maladies. In his experiments on transference of variola from the human to the bovine animal—"with a view to modification of the general disease variola into the local malady vaccinia"—Dr. Klein employed calves in preference to the milch cows and heifers which had hitherto been for the most part employed by Ceely, Badcock, and others in experiments of this kind. Calf after calf was inoculated, one from the other, to the number of four, with lymph taken in the first instance from the early vesicles of typical cases of confluent small-pox. The local results after each successive inoculation were in no way characteristic of "vaccinia": in none was there any appearance whatever of vesiculation. At the stage now reached, the fourth remove from the small-pox patient, semi-fluid material obtained on the seventh day from certain incisions of the fourth calf of the series was introduced by Dr. Cory by five separate insertions into the arm of an infant, and with complete success. The arm of this infant presented on the eighth day appearances characteristic of vaccina, and the course of the malady proceeded from first to last in perfectly orthodox fashion.

Having thus obtained by passing small-pox matter through the calf a lymph which in its effects on the human subject proved indistinguishable from vaccine lymph, Dr. Klein transferred this lymph back from the human subject to the bovine animal, with the result that complete manifestation of vaccina in the latter was at once obtained, as is customary in the case of ordinary retro-vaccination. Further, lymph taken in turn from this retro-vaccinated calf and inserted indifferently into other calves and into the arms of infants, produced alike in the bovine and human subject *typical vaccina.* Finally, after a lapse of six weeks Dr. Klein submitted this retro-vaccinated calf and the calves vaccinated from it to the test of a further and thorough vaccination with current calf-lymph. The result was that all these animals entirely resisted vaccina.

Dr. Klein's other study of the ætiology of vaccina and variola had reference to the bacteriology of the lymph in each of these diseases. On examination in cover-glass specimens stained in alcoholic gentian violet, a minute bacillus was found, in abundance and almost in pure culture, in the lymph taken from the budding vesicle on the third and fourth days of vaccination, in the calf and also in the human subject. From lymph of the vesicles of small-pox patients Dr. Klein obtained a bacillus in no way to be differentiated by the means at his disposal from that found in vaccine lymph from bovine and human sources alike.

In late lymph (taken on the sixth or eighth day) this bacillus is scarce, and seems to be replaced by granules taking the fuchsin stain, granules which Dr. Klein suspects to be spores of the bacillus escaped from their bacillary envelopes. The early presence of this bacillus leads Dr. Klein to the conclusion that this microbe is not an adventitious saprophytic organism—a view which is corroborated by the fact that all attempts to cultivate the bacillus (or its spores) in a great variety of artificial media entirely failed.

This failure of the bacillus to grow outside the animal body was the greater misfortune since it has thus far prevented study by Dr. Klein of its ability by itself to produce the vaccine disease.

The other researches of the year were by Dr. Cautley, on the micro-organisms of the human intestine, and Dr. Andrewes on septicæmic processes. Dr. Sidney Martin's investigations into the chemical pathology of infectious diseases was extended to tetanus. This observer also submits a paper (Appendix B., No. 6) on the chemical pathology of diphtheria in relation to the symptoms of the disease.

Where so much is of scientific value, instructive, and interesting, it is hard to find fault. A sense of duty, however, compels us to dissent in the strongest possible way from some of the conclusions arrived at by Dr. S. Monckton Copeman, in his Report on an outbreak of typhus fever in the Wigan and Ince-in-Makerfield Urban Sanitary Districts during the last quarter of 1891. The points in the Report—otherwise an excellent one—which we feel bound to criticise adversely are—(1) the original diagnosis in the cases of Maria and Alice Horsfall, (2) the bringing forward of their cases as examples of relapses in typhus fever. The patients were sisters—Maria, aged 12 years, Alice, aged 13½ years. They were admitted to hospital on November 23, 1891, Maria on the fifth, Alice on the twelfth, day of a fever, which in each case ran a course of *twenty-five* days—the temperature charts being typical of enteric fever in no ordinary degree. In Alice's case there were 55 discharges from the bowels in 11 days—or an average of 5 daily. In the Report she is described as suffering from "fairly profuse diarrhœa, but again the stools were quite unlike the 'pea-soup' variety seen in enteric fever, being very dark in colour and resembling in all respects those of undoubted typhus cases who were under treatment at the same time."

On December 23rd the two girls were discharged "cured." They went home, but fell ill again twelve and thirteen days afterwards respectively of a fever which proved to be undoubted typhus. The temperature ranges are as typical of this fever as those in the previous fever had been of typhoid. The fever movement terminated by crisis in each case on the *thirteenth day*.

Now, who can doubt but that the course of events in these cases was as follows—an attack of enteric fever in late autumn, removal to an airy typhus ward in "a well-appointed isolation hospital"—as Dr. Thorne describes it—where they remained happily safe from that disease? When convalescent, a return home to one of the houses in Wigan, which, "both inside and out, are conspicuous for filth and squalor," exposure to the poison of typhus in and about such a home, when their receptivity was increased by recent illness; and, lastly, an attack of typhus.

It is hard to see why Dr. Coleman, with all the facts before him, should have chosen to adopt Dr. Barnish's diagnosis in these cases. He admits that a relapse in typhus is "of extreme rarity." One case indeed has been "recorded by Sir George Buchanan as having come under his observation at the London Fever Hospital, this being the only one observed out of 18,268 cases of typhus during a period of 23 years. Ebstein also met with a case in 1869. Murchison, Stewart, and Tanner all state that they had never seen an instance of a true relapse." These words are not ours—they are Dr. Coleman's, and by them he stands condemned. But he goes on to say: "From the temperature charts of the Horsfalls' illnesses it will be seen, in the case of the elder girl particularly, that the curve of the first attack has *perhaps rather* more resemblance to that of enteric fever than to that of typhus, especially as convalescence was delayed in both cases beyond the end of the third week. *Enteric fever, however, was not prevalent at the time; and Dr. Barnish assures me that the rash in each patient was as typical on the first as on the second occasion, when, as the temperature chart at once shows, there can be no doubt as to the correctness of the diagnosis.*" We are responsible for the italics.

It is a significant fact that Dr. Thorne makes no allusion in his Report to the interesting clinical fact of this double relapse in typhus. Perhaps he was as incredulous of its occurrence as we most certainly are.

Guy's Hospital Reports. Vol. L. London: J. & A. Churchill. 1894. Pp. 738.

The present jubilee volume of Guy's Reports is well up to the high standard of its predecessors. It contains fourteen articles, six plates, and some woodcuts. The first article consists of the notes taken by Dr. Wilkes (then a medical student and hospital dresser) of the first case of popliteal aneurysm treated by pressure. It occurred under Aston Key's care in 1846. The pressure was not sufficient to close the vessel and did not cause cure, and the femoral artery had to be ligatured. The case is interesting as an example of concise, yet sufficiently full, case-taking, and might be well used as a model by hospital dressers. Five cases of Digital Chancres occurring in Medical Men, is an important article, with well-coloured plates, by W. H. A. Jacobson, M.Ch. It shows, amongst other things, that infection can occur when making a *post mortem*. Hydatids in Bone, by J. H. Targett, is well illustrated with photographs.

J. H. Bryant gives a hundred cases of Hyperpyrexia, with their charts. The mortality was 84 per cent.; the cases were much more frequent in males (75 per cent.), and was much more prevalent during the summer months.

A general index for the 50 volumes (1836-1893) occupies 116 pages; it is carefully compiled, and the arrangement and type make it easy to use. It represents an amount of work of which even Guy's may be proud.

Medical Nursing: Notes of Lectures given to the Probationers at the London Hospital. By the late JAMES ANDERSON, M.D., F.R.C.P.; Assistant Physician to the London Hospital; Physician to the National Hospital for the Paralysed and Epileptic; Lecturer on Pathology at the London Hospital, and Joint Lecturer to the Nursing Staff on Elementary Physiology and Medical Nursing, &c. Edited by ETHEL F. LAMPORT, Associate of the Sanitary Institute and of the British Institute of Public Health; Formerly Hospital Sister at the London Hospital. With an Introductory Biographical Notice by SIR ANDREW CLARK, Bart., late President of the Royal College of Physicians, London. London: H. K. Lewis. 1894. Cr. 8vo. Pp. 184.

THOSE who are ambitious in the present day of obtaining proficiency in the sacred profession of nursing, cannot complain of any want of instructive text-books to guide them. The present little manual of "Notes" has been given to the world, "in accordance with the wishes of many of the late Dr. Anderson's friends." For this purpose Dr. Anderson's family placed his own notes in the hands of Sister Ethel; "and as, in many cases, these were very brief, they have been supplemented by other notes, taken down at the time of delivery by those who had the privilege of hearing the course. The first lecture was written out by Dr. Anderson himself, and appears in its original form, whilst the others have received some amplification."

Fifteen lectures are included in the text. They include a good deal of physiology, and the chemistry of food and of cookery; of general pathology; of clinical symptoms and diagnosis; and of the special features of special groups of diseases, as well as thorough guidance to the application of all the information so conveyed to the requirements of practical nursing. The concluding lecture—"The Nervous System and Nervous Diseases"—contains more concentrated information on these vitally important subjects—which had formed the special study of Dr. Anderson's life—than we can recollect having anywhere else seen conveyed in language so clear and simple. The fourth lecture, on "Digestion and Absorption;" and the ninth, on "Work and Waste—the Kidneys," also deserve special favourable notice. We cordially congratulate Sister Ethel on the way in which she has carried out her self-imposed task of editing—which to her has evidently been a labour of love—and warmly recommend this little volume to the notice of all nurses—present and to come.

Alpine Climates for Consumption. By HERBERT JUNIUS HARDWICKE, M.D., F.R.C.S., M.R.C.P.E.; Consulting Physician (and for seventeen years Acting Physician) to Sheffield Public Hospital for Diseases of the Ear, Throat, and Skin; late Editor of the *Specialist* (London). London: J. & A. Churchill. 1894.

THIS little *brochure* is invested with a vital interest by the fact that it is the outcome of the author's personal experience of the Alpine Health Resorts, to which he was himself for some time consigned by organic lung disease. He is already well-known to the reading world as a philosophic writer, who has pried more deeply than most into the *arcana* of science and theology. The *raison d'être* of the present publication is given in the introductory chapter—"When, myself attacked, in the autumn of 1893, with severe hæmorrhage from the lungs following influenza, I determined to try the effect of an Alpine climate on my own case, the result being that I am now in the enjoyment of very good health. Davos Platz was the particular place chosen, being apparently the most suitable for my case, and there I remained from early in November to the beginning of March, paying occasional visits during that period to the well-known resorts, such as St. Moritz, Wiesen, &c.; after which I left the Grisons for the district of Montreux in Canton Vaud, where I passed March, April, May, and part of June, dividing my time between Leysin, Les Avants, and other less important places. I now propose to place before my readers some of the main characteristics of each place, that some idea may be formed as to their relative merits as winter health stations. . . ."

In the few and short, but well-written, pages of this small volume the author gives an excellent summary of the physical features of these stations, with their respective merits and drawbacks—where such exist. He arranges the principal requirements of an Alpine winter climate in the treatment of phthisis as follows—"(1) High altitude; (2) low temperature; (3) dry atmosphere; (4) large amount of sunshine and ozone; (5) low atmospheric pressure; (6) freedom from wind; (7) freedom from organic and inorganic particles in the air; (8) absence of fogs; (9) good water-supply; (10) good drainage. Given all these properties in proportion the result is stimulation of the respiratory function, improved sanguinification and nutrition, expansion of unaffected parts of the lungs, and restriction of the limits of diseased areas, so that the bodily powers are sufficiently strengthened to be enabled to overcome the disease." The "climate of" and "life at" Davos receive more special attention here. This little work should be read by all who are interested in the subject of health resorts for the very numerous victims of chronic pulmonary disease.

The Bearer's Companion. First Aid to the Injured, and Management of the Sick; an Ambulance Handbook and Elementary Manual of Nursing for Volunteer Bearers and others. By E. J, LAWLESS, M.D., D.P.H.; Surgeon-Captain, 4th V. B. East Surrey Regiment. Illustrated with Forty-nine Engravings. Edinburgh and London: Young J. Pentland. 1894. Cr. 8vo. Pp. 262.

OF this excellent little manual we can only speak in terms of the highest praise. The author has evidently undertaken its preparation *con amore*, and has spared no pains in arranging his information in the most judicious way, of condensing it in the smallest manageable space, and of conveying it in the clearest and best-selected language. The volume is divided into two parts, of which the first is occupied with "First Aid to the Injured;" and the second with "Management of the Sick." Each of these parts is followed by an appendix—the first containing "Questions and Answers" on the subject matter of the preceding text; the second dealing with practical considerations on ventilation, disinfection, administration of medicines, &c., &c. Following the concluding portion of the text we have a "Bearer's Form of Report for Medical Officer," and a "Table of Poisons," with their symptoms and appropriate antidotes. The work concludes with an excellently-prepared and exhaustive index.

We cannot express too warmly our admiration of the way in which the author has selected and placed before his readers the grosser facts of anatomy, physiology, and pathology in the early lectures of the first part. The succeeding ones, which deal with surgical injuries and surgical treatment, display the same soundness of judgment, and clearness of thought and language. A goodly number of well-prepared diagrams and woodcuts illustrate the text throughout.

The second part gives correspondingly valuable advice and directions on the subjects of Nursing, Bedside Observation, Invalid Management, Health and its Preservation under Arms, &c. &c.; as well as directions to the regimental bearer what to do in the field and on the march, at the moment of occurrence of accident or injury. We most warmly recommend this excellent little volume for the perusal of all members of the class for whose instruction it is intended.

Prescribing and Treatment in the Diseases of Infants and Children. By Philip E. Muskett, late Surgeon to the Sydney Hospital; formerly Surgeon-Superintendent to the New South Wales Government (S. I. Service); Medical Superintendent, Quarantine Station, Sydney; and Senior Resident Medical Officer, Sydney Hospital. Third Edition; revised, enlarged, and re-arranged. Edinburgh and London: Young J. Pentland. 1894.

The great and rapidly-increasing popularity of this little volume relieves us of the necessity of speaking at any great length of the merits of this new edition. The fact that a third issue has been called for so soon clearly demonstrates that the book has filled a distinct gap in medical literature. Of the contents of this edition we can only speak in terms of emphatic recommendation.

The author has spared no pains in bringing his work thoroughly up to date. "Several remedies have been inserted for the first time—notably, coto, creolin, euonymin, liquor pepticus, phenacetin, salol, &c." Very important additions and improvements have been made in the second portion of the work—that which deals with the *treatment* of the diseases of infancy and childhood, under their respective headings. "More especially is this the case with respect to diphtheria, diarrhœa of mucous irritation, eczema, gastric catarrh in infants and in children, infantile atrophy, intussusception, pneumonia, teething, whooping cough, &c. . . . The labours of many minds have been brought together in the different prescriptions set forth under each disease."

"In the third part, allotted to recipes and accessory information, two important sections have been newly added; one relating to the advantages and value of boiled milk, and the other to the sterilisation and Pasteurisation of milk. In their composition an effort has been made to fairly and impartially summarise the most recent discoveries in the engrossing problem of the artificial feeding of infants."

In the present edition the first part, which deals with "Dosage and Therapeutics," occupies 82 pages; the second—"The Treatment of Diseases in Infants and Children," 215 pages; and the third—"Recipes," 12 pages. An excellently-prepared Index, of 20 pages, completes this prepossessingly neat and handy little manual. Of its contents we can only use language of unqualified praise. The author has thoroughly and conscientiously summarised our existing information in this very important department. He has arranged his material felicitously, and conveyed his meaning throughout in clear and well-chosen language. We think this little book should lie on the table of every medical practitioner.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. Ninety-Sixth Annual Session held at Baltimore, Md., April, 1894. *Also Semi-Annual Session, held at Annapolis, Md., Nov.,* 1893. Pp. 108.

The part of Hamlet has been omitted from this play. No papers read at the meetings appear in the *Transactions.* The President's Address, on "The Extinction of Tuberculosis," delivered by Dr. G. N. Rohé, and Dr. James T. Whittaker's Annual Address, on Predisposition to Phthisis, constitute almost the only portions of the volume which can be interesting to the profession generally. Societies do not die of old age, but of apathy and inanition; and, we fear, both of these solvents are at work here. There are more than 450 members of the Faculty; and an attendance of 55 at the semi-annual meeting is described as very satisfactory, and the accounts show considerable excess of expenditure over income.

Both Addresses are worthy of perusal. The revised Fee Table, recommended by a special sub-committee, is interesting. It is divided into medical, surgical, obstetrical, and miscellaneous sections, and two dollars is the minimum. The fees "may be *diminished* at the discretion of the physician, when he believes the patient cannot afford to pay the regular fees, and yet is able to make some compensation. It shall be considered, however, *unprofessional* to diminish the standard fees with a view to mercenary competition." We must add that "they may be increased, according to the judgment of the practitioner concerned, in all cases of extraordinary detention or attendance; also, in proportion to the importance of the case, the responsibility attached to it, and the services rendered when these are extraordinary."

A Treatise on Hygiene and Public Health. Edited by THOMAS STEVENSON, M.D., F.R.C.P. Lond., Lecturer on Chemistry and on Medical Jurisprudence at Guy's Hospital, Official Analyst to the Home Office; and SHIRLEY F. MURPHY, Medical Officer of Health of the Administrative County of London, President of the Epidemiological Society, late President of the Incorporated Society of Medical Officers of Health. In three volumes. Vol. III.—Sanitary Law. London: J. & A. Churchill. 1894. Royal 8vo. Pp. 459.

NOT long ago it was our privilege and pleasure to review the first two volumes of this great work on Hygiene and Public Health, which is completed in the volume which now lies before us.

The reader will remember that the earlier volumes consisted of a series of exhaustive monographs by various authors, who had attained the rank of experts or specialists in their several departments. The name of the author was in each case a guarantee of the excellence of the article written by his pen, and the series of monographs was judiciously welded together into one harmonious whole by the literary skill and far-reaching knowledge of the editors.

One notable departure from the plan hitherto pursued in the publication of this work is the suppression of the authors' names in this, the third and concluding volume.

In selecting the authors of the articles on "The Public Health Law of England, Ireland, and Scotland," the editors deemed it preferable to place the work in the hands of gentlemen of recognised legal ability, each of whom is officially engaged in the administration of the law of that part of the United Kingdom to which his article relates. The adoption of this course rendered the omission of the names of the authors necessary. The compensation is that the reader will have for his use a work based on actual experience of a very novel and special kind.

The contents of this third volume are included in three sections—in the first, which runs to 338 pages, a full account of the law relating to the Public Health in England and Wales is given. The sections relating to Ireland and Scotland respectively are much shorter, because the editors have thought it advisable merely to point out in them the differences which exist between the law of each of those countries and that of England and Wales. A copious index brings the volume to an end.

In an important "Prefatory Memorandum" by the English author, the object of his undertaking is set forth. He writes: "In the following pages an attempt has been made to present in an intelligible form so much of the law relating to the public health in England and Wales as is likely to be serviceable to members of the medical profession who may be concerned in its administration." The immensity of his task is graphically depicted in the following sentence, which we quote because it conveys an adequate idea of the boon which the publication of this volume will certainly confer upon medical officers of health. "It has been necessary," observes the author, "to disentangle and collate an immense number of more or less intricate provisions, scattered up and down the Statute Book and in the orders and regulations of various Government departments; to explain their object and effect, the difficulties which have arisen in carrying some of them into execution, and the manner in which these difficulties may best be met; and to refer to some few decisions of the Courts which have been given upon questions of importance from a sanitary point of view."

Surely, such a paragraph as this should carry conviction into any impartial mind that the time has come for codification of

British Sanitary Law, and the long-suffering disciple of Preventive Medicine may well ask when will the din of party strife cease in the Houses of the Legislature, and set our hereditary and elected legislators free to deal with so truly national a question?

The volume is thoroughly up to date. The provisions of the Local Government (England) Act, 1894, are incorporated in those of its pages which relate to that division of the Kingdom. Similarly, the Public Health Acts Amendment Act, 1890, the Labourers (Ireland) Acts, 1883-92, and other recent sanitary statutes are laid under contribution in the section relating to Ireland. Lastly, in the Scottish section, an account is given of the Local Government (Scotland) Bill, 1894, which has recently passed into law and been added to the Statute Book as the "Local Government (Scotland) Act, 1894."

Writing in Ireland, we are naturally most concerned with the portion of the book which refers to this country. In his "Prefatory Note," the author of this part of the work joins in the cry for "Codification." He writes: "Great advantage would undoubtedly result from a consolidation and simplification of the various Acts bearing upon public health administration in Ireland, similar to what has been so admirably done in the case of the Housing of the Working Classes Act, 1890, and it is further necessary that certain defects of the Public Health (Ireland) Act of 1878 should be amended." It is pointed out that this Act was drafted upon the lines of the English Act of 1875, but some important and apparently accidental omissions seriously diminish the value of the Irish Act. After enumerating these defects, the author goes on to say: "Omissions such as these appear to call for immediate legislation; and the opportunity thus afforded might with advantage be made use of for the purpose of consolidating in one comprehensive Act all the provisions distributed throughout a variety of enactments dealing with public health matters in Ireland." (Page 342.)

With this suggestion we are thoroughly in accord, and we also cordially endorse the author's opinion that, while the provisions contained in the existing Irish Sanitary Acts may be regarded as sufficient to cope with any danger affecting the public health, "it is more than questionable whether the several local authorities throughout Ireland charged with the execution of the Acts have by wise and energetic administration given full effect to the extensive powers vested in them. To remedy abuses and to insure a steady sanitary progress a public opinion must be created, and this can only be done by the dissemination of sound views on hygiene and public health among the people at large."

The machinery provided for the administration of the Public Health (Ireland) Act, 1878, is in one respect at all events eminently unsatisfactory, and the author agrees with us, for he writes (page 386 :—

> "As the dispensary medical officers depend to a large extent for their maintenance upon the private practice they can obtain in their districts, and as the relieving officers are the officers of the guardians, it is not difficult to understand that for such small additions to their salaries (from £15 to £25 a year) these officers have no strong inducements held out to them to display such an amount of activity in the discharge of their public health duties as may possibly offend some of the persons upon whose goodwill a great deal may depend. No officer charged in Ireland with the administration of the public health in the rural districts is, like the medical officer of health for an English district, independent of private practice or placed in such a position as would enable him to disregard personal influences in the discharge of his duties."

This statement may not be complimentary to a deserving, hard-worked, and wretchedly paid body of public servants; but it is true, and in accordance alike with common sense and a knowledge of human nature.

In conclusion, we have to testify to the very favourable impression which this legal volume has made upon us. Although we are not lawyers, more than twenty years' close acquaintanceship with sanitary matters has made us tolerably familiar with public health enactments, and we consider that they have been carefully and usefully codified by the anonymous writers, whose services the editors have been fortunate enough to secure. "Sanitary Law" is an appropriate and justifiable title for this, the third and closing volume of Stevenson and Murphy's Hygiene and Public Health.

Handbook of Obstetric Nursing. By FRANCIS W. N. HAULTAIN, M.D., F.R.C.P. Edin., and JAMES HAIG FERGUSON, M.D., F.R.C.P. Edin. Second Edition, revised and enlarged. Edinburgh and London: Young J. Pentland. 1894. Pp. 258.

WE confess to a feeling of great disappointment in the perusal of this work. When first it was placed in our hands, we were much impressed with its appearance.

The publishers, needless to say, have carried out their part of the work in admirable style. As regards binding, paper, type, engravings—coloured and otherwise—nothing is left to be desired; but so much, we regret, cannot be said of its contained matter.

We find at the outstart the nurse given the quite, we hope, unnecessary advice to take a daily bath; but, surely, the latter commodity is not rare enough now-a-days to justify the authors in advising as a substitute the following very objectionable expedient—"In the absence of a regular bath this can be accomplished by wringing out a rough towel in soap and water and rubbing the body briskly from head to foot."

Chapter II. deals with antiseptics—their meaning and application, and we are here informed that "epidemics of child-bed fever in Germany, France, London, and Dublin are facts with which the most superficial student of obstetrics is well acquainted.

Again, we read—"But it is well-known that antiseptics have entirely and absolutely revolutionised all this, and this explains the recent history of such hospitals as Paris, Prague, Copenhagen, London, and Edinburgh, where, as a matter of fact, the disease has been practically stamped out."

It will be noted that Dublin, though receiving due mention in the first sentence, is entirely omitted from the long list of cities which have undergone improvement, Edinburgh being substituted for it.

On first reading these sentences we were under the impression that they were written with design, dictated by a petty jealousy, directed against one of the greatest centres of practical obstetrics in the world. A further study of the book, however, has convinced us that the authors have not made themselves acquainted with the work done in Dublin, for in no other way can we explain the satisfaction they appear to find in the performance of their own methods.

Before passing from this chapter, we may inform the authors that very few modern authorities will agree with them in their enunciation of what we believe to be a most pernicious doctrine—viz., "The mere fact of any one going into a lying-in woman's room who has recently come from a case of puerperal fever, erysipelas, or diphtheria, or who has been dressing a dead body may be quite sufficient to give the lying-in woman puerperal fever."

We shall not inflict the shortcomings of the succeeding twelve chapters on our readers, but shall at once pass on to "the management of normal labour." Here we find that the nurse is desired to keep a hand-bag containing, amongst other things, a Higginson's syringe and gum-elastic vaginal nozzle. By means of this instrument she is directed to douch out the vagina in every instance during the first stage of labour with antiseptic solutions.

We fail to call to mind a worse survival of old-fashioned midwifery than this. Such a syringe can never be kept aseptic, and its vaginal nozzle is simply an abomination.

We therefore, without hesitation, affirm that with such an arrangement the nurse, sooner or later, will carry in her bag a veritable death-trap, against which all the antiseptics she can muster will not avail.

The advice that a gum-elastic catheter should be preferred to the more cleanly metal or glass instruments, and that the use of carbolised vaseline as a lubricant is safer than that of soap, makes us wonder if this work is in any way an advance on those of ten or twelve years standing.

Fifteen lines of very inaccurate information are devoted to external palpation and this is placed in a secondary and quite subordinate position to vaginal examinations.

Pages of voluminous information are devoted to describing the latter. The only danger pointed out that may arise from too frequent examinations is "that they tend to irritate the cervix, and thus delay its rapid dilatation."

Further on we are informed that vaginal examinations may be made every half-hour during the second stage.

We need hardly point out that all this differs in no way from the teaching of twenty years ago, and that such methods have long since been found faulty and dangerous.

Page 118 contains the astonishing statement that the best treatment for rigid perinæum consists in the fomentation of the part with hot corrosive sublimate solution. The authors have thus picked out the substance of all others that will deprive the perinæum of its elasticity and make it liable to tear.

We need not proceed further in the criticism of this work, which in our opinion bristles with inaccuracies, some of them of so serious a nature that we cannot recommend the book to anyone, though much of its information is of a thoroughly useful character.

PART III.

SPECIAL REPORTS.

REPORT ON PUBLIC HEALTH.

By Sir Charles A. Cameron, M.D.; D.P.H., Camb.; M.R.C.P.I.; Ex-President, Hon. Dip. Public Health, and Professor of Hygiene and Chemistry, R.C.S.I.; President of the Society of Public Analysts; Medical Officer of Health for Dublin; Hon. Member of the Hygienic Societies of France, Belgium, Paris, Bordeaux, the Academy of Medicine, Sweden, and of the State Medical Society of California, &c.; Examiner in Sanitary Science, Royal University of Ireland; Member of the Army Sanitary Committee.

(Continued from page 439.)

DISINFECTION.

There is no more important department of the public hygiene of towns than that relating to disinfection of infected dwellings, clothes, bedding, &c. Prompt thorough disinfection has a considerable influence in lessening the amount of zymotic disease. With respect to house disinfection, the evolution of large quantities of sulphurous acid or chlorine in rooms which had been carefully closed is usually relied upon as sufficient, but gaseous disinfection should be aided by other means. The walls should be stripped of its paper and hot lime-washed, the floors and every part of the room that can be washed should be scoured with carbolic acid soap and hot water. No less than one pound of sulphur per 1,000 cubic feet of space should be employed, and care taken that moisture is abundantly present in the atmosphere of the room. For this purpose the heat evolved by the combustion of the sulphur should be employed to evaporate water in a vessel placed over the burning sulphur. The furniture left in the room should be thoroughly cleansed.

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[*] The author of this Report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of the Journal.

As regards the disinfection of clothing, that process is best effected by means of super-heated steam. Manlove, Alliott & Co., of Nottingham, supply an apparatus for this purpose, patented by Mr. Washington Lyons, and Goddard, Massy & Son, of Nottingham, supply a similar apparatus. The steam steriliser, or disinfector, is gradually displacing the hot air disinfector, which for so many years has been employed, in one form or another, by sanitary authorities and in hospitals.

In any town sufficiently large to be able to maintain a proper disinfecting department, the following system should be adopted:—The articles to be disinfected should be conveyed to the disinfector by the persons employed to disinfect houses. The articles should be received in a room, arranged in open work baskets, and conveyed to the disinfector. This apparatus is so placed that the opening through which the articles are introduced into the apparatus and that through which the disinfected articles are removed therefrom are situated in different apartments. The person who takes out the disinfected articles should not enter the rooms or passages in which the articles had been placed or carried through before being disinfected. The man, horse, and van employed in the removal of the disinfected articles are to have no direct communication with the persons employed in the conveyance and disinfection of the infected clothing, &c. The van and horse should be kept apart from the disinfectors' van and horse. The dress worn by the disinfectors whilst at work should be left after their work at the disinfecting house, stored in a press or locker. The men should, if possible, be provided with a bath before they leave, at the close of the day, the disinfecting house.

I have made inquiries as to the methods of disinfection in most of the larger towns in England and Wales, and the results are of sufficient interest to be worth recording.

Aston Manor. Population, 72,000.—A hot air disinfector (Ransome's) is used. One person is employed in the disinfecting house, and infected articles are occasionally burned. No charge for disinfection. There are two vans in charge of one man, who is the only person permanently employed. Salary, 30s. per week. Tradesmen are employed in disinfecting rooms, the paper of which is generally stripped. In 1893, 411 dwellings and 8,912 articles were disinfected. No charwomen employed.

Barrow-in-Furness. Population, 51,712.—An "air-tight chamber" and sulphur constitute the means of disinfecting clothing and bedding. There is one disinfector, who is also attendant at the Fever Hospital. No charge is made for disinfection. Infected articles are burned in furnace of pumping station, and no van is kept. Infected houses are whitewashed by their landlords, and there are no charwomen regularly employed by the Sanitary Authority. The wall-paper of infected rooms is removed. The two nuisance inspectors are also disinfectors of dwellings, of which about 150 are annually disinfected.

Battersea. Population, 160,000.—The disinfecting agents used are sulphurous acid, hot air, steam, and bichloride of mercury. The disinfection by steam is performed by a contractor. No charge for disinfection. Some infected articles are destroyed in dust cremator. There is one van in use beside the contractor's van, and there are three disinfectors and a storekeeper. If necessary, owners are called on to whitewash disinfected rooms. There is no laundry. Dwellings disinfected in 1893, 2,069. No record of disinfected articles. Cost of disinfecting staff, £300 a year.

Bermondsey. Population, 84,600.—A steam disinfector is used. Two persons are employed, each at a salary of 30s. per week. The cost of disinfecting department is £224 per annum. Infected articles are sometimes burned in a specially-constructed furnace. About 1,000 dwellings and 10,000 articles are annually disinfected. The total number of persons employed in the disinfecting department is three. The whitewashing and cleansing are performed by the occupiers.

Birkenhead. Population, 105,630.—Steam disinfector in use. One person in disinfecting chamber, and one disinfector. Wages, 30s. and 24s. a week, and uniform. No charge for disinfecting clothes, but a charge of 5s. per room is made for disinfection of dwellings. The disinfection of houses is done by contract, and the rooms are whitewashed and washed. The walls are rubbed down with carbolic acid powder, but the paper is not removed. On the average, 1,000 dwellings and 400 parcels of clothing (each parcel containing 30 to 130 articles) are yearly disinfected. Two vans are used.

Birmingham. Population, 492,301.—Disinfection of clothing performed by hot air and steam. There are four persons in the disinfecting chamber, and two in charge of vans. Their wages are from 25s. to 30s. per week, and two of them have house, gas, and fuel free. "Each district inspector (16 in number) disinfects with sulphur the houses in his district." As to the cost of disinfecting department, the answer is—"as men are not employed solely in this work, difficult to say." In 1893, 2,188 houses and 50,138 articles were disinfected. There is no laundry. The rooms are not washed by charwomen. There are four whitewashers in the service of the sanitary authority, but they act only when occupiers or owners fail to have the whitewashing done. Infected articles are sometimes burned in a muffle.

Blackburn. Population, 125,797.—A high-pressure steam disinfector is in use. Two persons (each paid 24s. per week) and two vans are employed. Infected dwellings are not whitewashed, washed, or deprived of their wall-paper. There is no laundry. In 1893, 409 dwellings and 2,889 articles were disinfected. The operations of "disinfection are mixed up with other work," so that the foregoing information is only approximately correct.

Bolton. Population, 118,303.—In 1893, 6,994 articles were disinfected in steam steriliser, some infected articles were cremated, and 806 dwellings were disinfected. The staff consists of a disinfector at £90 a year, and an assistant at 24s. per week. Two vans in charge of one man are used. The infected rooms are "usually" whitewashed and washed by the occupiers, and in most cases the wall-paper is removed. There is a laundry for infected linen, &c., but "the public cannot be induced to use it."

Bradford. Population, 223,985.—Steam disinfection is employed. From 800 to 1,000 dwellings, and 9,000 to 10,000 articles are disinfected. Two persons are employed in the disinfecting department, and they have each a salary of 24s. per week. There are two vans. There is no permanent staff of whitewashers or charwomen. Infected dwellings are "occasionally" whitewashed. Infected articles are sometimes destroyed in a cremator. Wall-paper is sometimes removed.

Brighton. Population, 118,715.—A steam disinfector is used. Two persons employed in disinfecting-house, the number of house disinfectors varying according to circumstances. Two vans are used. Visitors only are charged for disinfection. Infected articles are rarely burned; but when they are the operation is performed in a specially-constructed furnace. Infected dwellings are whitewashed by their occupiers, and when necessary the wall-paper is removed. There is no laundry. The disinfection is performed by the sanitary inspectors, with such assistance as they may require. In 1893, 670 rooms, and more than 8,000 articles, were disinfected.

Bristol. Population, 226,578.—Steam disinfection in use. In 1893, 1,853 dwellings and 46,915 articles disinfected, without charge. Some articles were burned in refuse cremator. In the disinfecting chamber two, and sometimes four, men are employed. There are two vans in charge of one man. The fourteen district sanitary inspectors (salary, 20s. to 30s. per week) are employed in disinfection of dwellings. The total cost of disinfecting staff is from £18 to £19 per week, but fourteen of the staff do ordinary sanitary work. No whitewashers or charwomen are in the service of the sanitary authority. Wall-paper is not "habitually" removed, but it is when considered necessary. There is no laundry.

Burnley. Population, 90,000.—Sulphur used for disinfection. There is no disinfecting house; articles are sometimes burned in destructor. One van is in charge of two persons. One or more persons are employed in disinfecting dwellings; tenants or owners whitewash dwellings. There are no whitewashers or charwomen employed by sanitary authority. There is no laundry. From 300 to 1,400 dwellings are annually disinfected. There is no permanent employé in the disinfecting department.

Cardiff. Population, 150,000.—The disinfecting arrangements are being reorganised consequent on the introduction of steam disinfection.

Chelsea. Population, 96,253. — Sulphur and steam used for disinfection, which is free. Two persons are permanently employed at 30s. per week each. Infected dwellings are not whitewashed or washed by the sanitary authority. A few articles are soaked in paraffin and burned. Four hundred dwellings and 2,000 articles are annually disinfected. Owners are sometimes called upon to remove wall-paper. Two vans are used. There is no laundry.

Clerkenwell. Population, 66,000.—Sulphur and hot air are the disinfecting agents employed. There is one van in charge of two men. No charge is made for disinfecting. Only one person is permanently employed; his wages are 23s. a week. In 1892–3, 484 dwellings were disinfected. No record of disinfection of clothing. Infected articles are burned "only in very exceptional cases." The wall-paper is removed when considered desirable. No whitewashers or charwomen are employed.

Coventry. Population, 55,000.—Steam disinfection in use. In 1893, 55 dwellings and 2,405 articles were disinfected without charge. One man is permanently employed and at a salary of

£1 10s. per week. Owners or occupiers do the work of whitewashing and cleansing. Articles are never burned. There is no laundry.

Croydon. Population, 111,921.—Steam and hot air disinfection are in use. Two persons are employed at a cost of £4 a week. There are two vans. Whitewashing and cleansing are done by owners or occupiers. In 1893, 780 houses and 800 parcels of articles were disinfected without charge. The landlord is called upon to remove wall-paper in cases of small-pox and scarlet fever. There is no laundry. Infected articles are sometimes burned.

Derby. Population, 98,795.—This town has no public disinfecting house. In the Borough Hospital there is a steam steriliser for infected clothing. Infected articles are seldom burned, when they are, the operation takes place in the refuse destructor. One man is employed in house disinfection. Whitewashing and cleansing are done by owners of premises. Removal of wall-paper is "not systematically insisted upon." In 1893, 922 dwellings were disinfected. Wages of disinfector, £1 3s. per week.

Devonport. Population, 55,000.—Sulphur is the disinfectant used. Two persons employed, one at 21s. and the other at 20s. per week. No special van is used for conveying infected clothing, &c., an empty dirt cart being employed for the purpose. In most cases infected wall-paper is removed. After disinfection the rooms are washed. Infected articles are sometimes steeped in paraffin and burned.

Fulham. Population, 109,995.—Disinfection work is performed by a contractor; whitewashing and cleansing are performed by owners. The wall-paper is removed by sanitary authority if owners neglect to do it. The contractor undertakes the washing of infected linen. In 1893, 1,086 dwellings and 67¾ tons of clothing and bedding were disinfected without charge to those for whose benefit the work was done, but at a cost of £850 11s. to the sanitary authority. The disinfectors are paid 22s. and 30s. per week respectively.

Greenwich. Population, 59,957.—Steam disinfection used. Three persons are employed—one in disinfecting houses, one in charge of two vans, and one for the disinfection of rooms. They receive weekly 36s., 30s., and 24s.; total, £4 10s. No charge is made for disinfection. There is no laundry. Infected articles are sometimes burned in a furnace. Rooms are whitewashed, but not washed, by the sanitary authority. Infected wall-paper is removed. In 1893, 495 dwellings and 4,935 articles were disinfected.

Hackney. Population, 229,542.—Steam disinfector in use. Four persons are employed as disinfectors—one at 27s., to be raised to 30s.; the others at 25s., to be raised to 28s.. Two cleaners—one at 28s. per week, to be raised to 30s.; and one at 24s., to be raised to 26s. Four whitewashers are employed. Two hand trucks are used for conveyance of infected and disinfected articles. In exceptional cases infected articles are burned. Wall-paper is removed, and the walls washed with carbolic acid and water. In 1893, 2,693 dwellings and 8,719 articles were disinfected.

Halifax. Population, 92,000.—Steam disinfector used. Two persons are employed in the disinfecting house. Two vans are in care of one person. In 1893, 580 dwellings and 10,533 articles were disinfected, the latter by the district sanitary inspectors. Infected wall-paper is removed, while washing and cleansing are left to the occupiers. There is no charge for disinfection. There is no laundry. Wages of disinfectors not ascertained.

Hammersmith. Population, 103,029.—Dry heat is the disinfectant for clothing. Two persons are employed, one at 34s. and one at 25s. per week. No charge for disinfection, a process applied annually to about 1,200 dwellings and 12,000 articles. One van is used. Infected dwellings are not whitewashed, washed, or deprived of wall-paper by the sanitary authority. There is no laundry.

Hanley. Population, 56,547.—Steam disinfection in use. In 1893, 1,389 houses and 4,950 articles were disinfected. Recently infected articles have not been burned. One man (wages 23s. per week) does all the work. One van is used. Infected dwellings are not whitewashed or cleansed, and the removal of wall-paper is "optional." Disinfection is free.

Hastings. Population, 55,943.—Steam ventilation used. Statistics as to number of dwellings and articles disinfected not available. Whitewashing and cleansing left to occupiers. Wall-paper sometimes removed. Two persons are in charge of the disinfecting house and two in charge of vans. The sanitary inspectors attend to house disinfection. There is no charge for disinfection.

Holborn. Population, 35,000.—The disinfection is done by a contractor, who uses high-pressure steam. In cases of small-pox and diphtheria the wall-paper is removed. Disinfection is free, and articles are occasionally burned.

Ipswich. Population, 59,000 (about).—Steam disinfection in use. No one is permanently employed in the disinfecting department. There are two vans. Infected houses are not whitewashed or cleansed by sanitary authority. The wall-paper is sometimes removed. About 200 houses and 1,000 articles are annually disinfected. Infected articles are sometimes burned in "furnaces of any works." No charge is made for disinfection.

Islington. Population, 350,000.—I have only imperfect information as regards Islington. The wages of disinfectors are 30s. per week, and the weekly cost of staff is £9. There are six whitewashers. Wall-paper is sometimes removed, but the cleansing of rooms is left to the occupiers. There is no charge for disinfection.

Kingston-upon-Hull. Population, 212,679.—Steam disinfection is used. One person is employed in the disinfection house, and the total number of persons in the disinfecting department is six. There are three vans which are worked by one permanent employé, who receives assistance when required. There are eight whitewashers. The cost of the disinfectors is £514 per annum. Disinfection is free. In 1893, 3,319 dwellings and 18,844 articles were disinfected. Charwomen are not employed. In cases of cholera and some of small-pox the patient's clothes are burned in a destructor. When small-pox and diphtheria cases are treated at home the wall-paper is removed. There is no laundry.

Leeds. Population, 400,000.—Steam disinfector in use. In 1893, 1,505 rooms were disinfected; also 6,804 beds and mattresses, 21,577 bed clothes, 129,096 wearing apparel, and 34,726 of miscellaneous articles. Ten persons are permanently employed in the disinfecting department; of these, two are in the disinfecting chamber. There are two and sometimes three vans used, each with two men. Four and sometimes six persons are employed in disinfecting houses. The foreman receives 35s. per week, the other workmen 30s. The cost of the staff in 1893 was £2,279. Four whitewashers are employed, but no charwomen. In the case of small-pox and typhus the wall-paper is removed; in other cases the removal is at the discretion of the occupiers. No charge is made for disinfection. There is no laundry. Three ambulances and three men are employed in the removal of infectious cases to hospital.

Leicester. Population, 184,547.—Steam disinfection is in use. Two persons are employed in disinfection; their wages are 22s. per week each. Two thousand seven hundred and fifty-four dwellings disinfected in 1893; no record of articles disinfected. There are two vans. No limewashers or cleansers in the employment of the sanitary authority. Infected articles sometimes destroyed in boiler furnaces. Disinfection free. Wall-paper is removed by order of medical officer of health.

Lewisham. Population, 97,160.—Steam disinfector used, and worked by two persons. In 1893, 921 dwellings and about 5,500 articles were disinfected. Wages of disinfectors—two at 30s.; one at 26s. per week; and one at 1s. per hour. There are two vans in charge of four persons. The total number in disinfecting department is four. Whitewashing is "very seldom" performed, and houses are not washed by charwomen. Infected articles are sometimes burned in a field.

Leyton. Population, 70,000.—Sulphurous acid is used as a disinfectant. About 300 dwellings are annually disinfected. Infected articles are sometimes burned. Notice is served on the owners of disinfected dwellings to limewash and clean them. There is no record of number of disinfected articles. Disinfectors are paid 5s. per case.

Liverpool. Population, 507,230.—Steam and dry heat are employed. There are five persons in the disinfecting house. There are four vans in charge of four persons, not including drivers. Excluding the latter, eleven persons comprise the disinfecting staff, whose wages vary from 30s. to 37s. per week. The cost of disinfecting department is about £2,800 per annum, owners being expected to get the whitewashing and cleansing done. About 3,000 houses and 40,000 to 50,000 articles are disinfected yearly, and without charge. There is no laundry.

London (City of). Population, 37,505.—Steam and sulphurous acid are used. In 1893, 475 dwellings and 6,925 articles were disinfected gratis. The whitewashing, &c., is done by the occupiers. Ten persons are employed, of whom three or four are in the disinfecting house. There are two vans in charge of two persons. Infected articles are destroyed in a special furnace.

Manchester. Population, estimated to middle of 1894, 522,365.—Bedding, clothing, &c., are disinfected in one of Mason's stoves by steam and dry heat up to 220° F. Two persons are in charge of this disinfecting oven. About 12 men, called "strippers and washers," are employed, but in case any disease is epidemic in character, more men are employed to meet the requirements. There are 4 ambulance officers constantly employed, and another occasionally employed, including 1 always on duty during the night, and also on Sundays. There are 3 ambulances for patients (1 brougham ambulance; 2 bedding ambulances); 8 covered hand vans are used by the strippers. No whitewashers are permanently employed, but "sanitary dry lime" is given to poor people, and brushes lent to them to encourage them to whitewash their houses, yards, and closets, and keep them clean. The lime and brushes are distributed by the female health visitors. There are no charwomen in the service of the corporation. Infected articles are burned with the written or verbal consent of the owner only, "so as to avoid claims for compensation." In 1893, 6,533 rooms were fumigated only by the sanitary inspectors. 8,401 rooms were stripped and washed with caustic soda, and afterwards fumigated by men employed as strippers. The walls and ceilings of rooms, furniture, &c., are now washed with a solution of chloride of lime, 3 oz. to the gallon. Chloride of lime is also used for fumigation purposes in the proportion of a pound to a pint of hydrochloric acid. In 1893, 31,762 articles were stoved and 24 burned: total, 31,786. No charge is made for disinfection. There is no laundry for infected clothing. As to the total number of staff, there are on the average 12 strippers and washers, 5 ambulance officers, and 1 office clerk. In addition to above the district sanitary inspectors in the first instance visit the houses immediately a case of infectious disease is notified. The attendants at disinfecting oven receive 25s. per week each. Strippers and washers average about 25s. each. They are paid so much per room—viz., 2s. 3d. ordinary size, staircase, landing, lobby, scullery and closet 10d. each. Large rooms, such as those in lodging houses, are done by day work. Ambulance officers, 36s., 32s., and 30s. per week. Office clerk 25s. per week. The cost during 1893 for the removal of patients to hospital, removing, stoving and returning bedding, cleansing infected houses, chemicals used, and maintenance of rolling stock, was £3,373 18s. 2d. This amount was above the average on account of the epidemic of small-pox during the earlier part of the year. About £2,750 per annum will be the average cost. The wages of the sanitary inspectors is not included under this heading.

Marylebone. Population, 142,404.—Hot air is used for disinfection, but a steam steriliser has been ordered. Two disinfectors are employed at a salary of 35s. per week each. The six sanitary inspectors perform the work of disinfection of dwellings. There are two vans in use and in charge of three persons; 1,005 dwellings and 19,726 articles were disinfected in 1893. No charge for these operations is made. Sometimes articles are burned in an open space. The sanitary staff does not undertake the cleansing or whitewashing of dwellings or the removal of their wall-paper.

Middlesborough. Population, 75,532 (in 1891).—Steam used. About 184 dwellings and 1,125 articles annually disinfected. A van is provided by contractor, who supplies driver and horse. There is only one permanent officer (salary 30s. a week), who, however, does not remove articles. Whitewashing is left to occupier.

Mile-End, Old Town. Population, 108,000.—Steam is used. Six employés, receive 30s. to 35s. a week each. Cost of department, £400 a year. Two vans are in charge of two men. About 1,500 dwellings and 5,000 articles are annually disinfected. Whitewashing and cleansing carried out by occupiers, who sometimes have to remove wall-paper.

Newcastle-upon-Tyne. Population, 201,947.—Steam disinfection used. Seven hundred and fifty-four dwellings and 13,451 articles were disinfected in 1893. There are two disinfectors of rooms, and two assistants for removal of things. The cost of the staff is £407 per annum. Two vans are in charge of two men. No whitewashers are in the service of the sanitary authority. Bedding, old, or otherwise unfit for use, is burned in a destructor. There is no laundry. Disinfection is free.

Newington. Population, 118,500.—Hot air is used for disinfecting, but will soon be superseded by steam. Two disinfectors are employed. One van is in charge of two men. The cost of disinfecting staff is £500 a year. Whitewashing, &c., not performed by sanitary authority, but the wall-paper is sometimes removed.

Newport. Population, 54,707.—Hot air is used as a disinfectant. There is no special staff, the inspectors of nuisances and their assistants doing the work. There is no special van kept. Infected articles are sometimes burned. "Very few" dwellings are disinfected.

Northampton. Population, 63,000.—Disinfection by steam is in use. In 1893, 414 dwellings and 4,928 articles disinfected. One man only employed, at 18s. per week, eight hours per day. Two vans are used; whitewashing is done by occupiers.

Norwich. Population, 105,000.—Steam used. One man is employed in disinfecting house, and the inspectors of nuisances act as disinfectors of houses. There are two vans in charge of one or two men. There seems to be no record kept of work done. Infected articles are treated with paraffin and burned.

Oldham. Population, 138,755.—Hot air is the disinfectant. One man, with occasional assistant, does all the work. He receives 29s. a week and a house. There are two vans. One thousand and five dwellings, and 19,912 articles were disinfected in 1893. In time of small-pox wall-paper is removed.

Paddington. Population, 117,846.—The work is done by contract. In 1892, 715 dwellings were disinfected. No record as regards infected clothing, &c. The sanitary authority is considering the propriety of establishing a disinfecting department.

Plumstead. Population, 59,000. — Steam disinfection used. Three persons (30s. per week each) do the work. One man is in charge of two vans. Six hundred and twelve dwellings and 13,716 articles were purified in 1893. In case of small-pox the patients' rooms were whitewashed by contract.

Plymouth. Population (1893), 86,781.—Hot air is used, but a steam disinfector is about to be obtained. One person at 18s. a week is employed. Statistics are wanting.

Portsmouth. Population, 170,973.—Dry heat is used. The disinfecting staff comprises two men and a boy, and one man gives part of his time. Wages, £1 2s. 6d., 18s., and 8s. per week. The cost per annum is £130. Two vans are used, and are in charge of one man. In 1893, 1,931 dwellings were disinfected. No staff of whitewashers kept. Articles are "seldom" burned. In some cases charges are made for disinfection.

Preston. Population, 111,425.—Hot air and sulphurous acid are the disinfectants. Five hundred and seventy-nine dwellings and 175 parcels of articles were disinfected in 1893. Two disinfectors receive 25s. per week each; they do all the work. Articles are "very seldom" burned.

Rochdale. Population, 71,401.—Steam is used. Two persons are employed in the disinfecting house, and sanitary inspectors attend to disinfection of houses. There are two vans. About 300 houses and 3,000 articles are annually disinfected. Wages of disinfectors, 33s. and 28s. per week. Some articles are burned. No whitewashers are employed.

Rotherhithe. Population, 39,074.—Disinfection performed by contract. Steam used. About 200 dwellings annually disinfected. In 1893, 175 articles disinfected. One man employed as disinfector; salary 30s. a week. As to whitewashing, my informant says—"We call on the owner to do it (and get it done), but it is illegal now under Public Health (London) Act, 1891, sec. 60."

Salford. Population, 205,828.—Steam used. Eight persons are employed, one at 26s. and the others at 22s. per week. About 1,500 dwellings and 1,400 lots of clothes, &c., are annually disinfected. Two vans are in charge of two men. Two men are in the disinfecting house, one of whom is in the part where the disinfected articles are taken from disinfector. The walls of infected dwellings are treated with carbolic acid and whitewashed. Eight limewashers are employed. Some articles are consumed in a destructor.

Sheffield. Population, 338,316.—Two men, at 25s., are permanently employed. Steam is used. About 2,000 dwellings and 16,000 articles are disinfected yearly. Two vans are in charge of two men. The walls of infected rooms are not treated by the disinfectors.

South Shields. Population, 87,041.—Steam disinfector used. Two disinfectors receive 26s. and 25s. a week each. Seven hundred dwellings annually disinfected. No record of clothes disinfection. One van in use, and in charge of one man. Whitewashing, &c., left to occupiers.

Southampton. Population, 67,283.—Steam disinfector in use. One man exclusively employed, but he is assisted by the sanitary inspectors. One van is used. No record of number of disinfections.

Stockport. Population, 73,000.—Steam is used. Three disinfectors are employed at 22s. each, and 5d. per hour overtime. One van is used, but a second is to be procured. Eight hundred and ninety-nine dwellings and nine schools were disinfected in 1893. From 1st July to 31st December, 1893, 5,148 articles were disinfected, exclusive of those treated in the Fever Hospital. In cases of small-pox, diphtheria, and scarlet fever the wall-paper is removed. In some cases the occupiers are compelled to whitewash and cleanse infected rooms. If articles are too dilapidated to stand disinfection they are burned.

St. George the Martyr, Southwark. Population, 60,000.—A steam disinfector in use. Two disinfectors employed at £1 17s. 6d. and £1 7s. per week each. Two hundred and fifty dwellings and 250 lots of articles annually disinfected. Two vans used. No official whitewashers employed.

St. George's, Hanover-square. Population, 80,000.—Steam disinfection in use. Three persons are employed at 30s. per week each. Six hundred and thirty-two dwellings and 11,352 articles were disinfected in 1893. Two vans are used by two persons. No whitewashers kept. Infected articles are sometimes burned in a furnace in disinfection house.

St. Giles, London. Population, 39,782.—Steam is the disinfectant. Three hundred and forty-eight dwellings and 6,772 articles disinfected in 1893. Two disinfectors receive each 4s. 7d. per day. There are two vans. They are worked under direction of the sanitary inspector. After office hours a charge of 10s. 6d. is made for disinfection. Wall-paper is removed.

St. James's, Westminster. Population, 24,995.—Steam used. One permanent officer, at 30s. per week, does the work, receiving occasional assistance. Two vans are used. Two hundred and twenty-seven dwellings and 2,961 articles were disinfected in 1893.

St. John's, Hampstead. Population, 73,000.—Steam disinfection is used. There is an engineer, a disinfector, and a driver. Two vans are in charge of one man. Five hundred and eight dwellings and 8,365 articles were disinfected in 1893. Infected articles are sometimes burned. Whitewashing is done by occupiers.

St. Leonard's, Shoreditch. Population, 122,430.—Steam disinfection adopted. Average number of dwellings disinfected during last three years, 1,100; do. articles, 10,700. No charge for disinfection. One man is employed in the disinfecting house, and two, or occasionally three, in disinfecting rooms. Two vans are used, in charge of two persons. The chief disinfector receives 30s. a week, the other two disinfectors 24s., and the occasional man 20s. a week. There are no special whitewashers or charwomen. When necessary wall-paper is removed.

St. Luke's, Middlesex. Population, 42,941.—A hot air chamber is used, and is in charge of a man and his wife, who are also keepers of the mortuary. They receive 23s. per week, together with lodgings, gas, and fuel. A man is paid 1s. 6d. for disinfecting each room, and 2s. for carriage of each lot of articles to and from the disinfecting house. About 600 rooms and 500 parcels of bedding, clothing, &c., are treated annually. One van is used. No permanent staff of whitewashers and cleaners are employed. No charge is made for disinfection. Infected articles are sometimes burned. Orders to remove wall-paper are sometimes served on owners of infected dwellings.

St. Olave District, Southwark. Population in 1891, 12,723.—Steam disinfector in use. One disinfector is employed at 27s. per week and a cottage. One hundred and fifty-seven houses treated in 1893. This is but a small district. Till the early part of this year articles were removed and disinfected by a contractor, and paid for by weight. One man is now employed whose duties are to disinfect (having assistance with the trucks and machine when in use), cleanse, and keep in order the temporary shelter and the public mortuary, and generally to act as handyman. Should occasion arise this man would also strip and cleanse rooms after infectious cases.

St. Margaret and St. John's, Westminster. Population, 55,539.—Steam disinfection is used. There are three disinfectors. One receives 30s. per week, with lodgings, gas, and fuel. He and his wife have to keep the mortuary and coroner's courthouse in order. His daughter is assistant at 7s. 6d. per week. The other disinfectors receive 26s. and 22s. per week respectively. The total cost is £3 18s., plus cost of lodgings, fuel, and gas. Infected articles are sometimes burned in the furnace of the disinfector. Notices are served on occupiers to remove wall-paper, and whitewash and cleanse rooms. Disinfection is not charged for. In 1893, 606 dwellings were disinfected. Since 1st January, 1894, to 13th September, 1894, 4,716 articles have been disinfected.

St. Margaret-in-the-Fields. Population, about 16,000.—Disinfection (by steam) is done by a contractor; 7s. 6d. to 10s. 6d. per room is paid. No charge for disinfection is made. About 60 dwellings are disinfected annually. In case of poor persons the sanitary authority pays the occupier 5s. to sleep out of the dwelling for one night.

St. Mary Abbotts, Kensington. Population, 166,308 (1891).—Disinfection work done by a contractor, who uses dry heat and superheated steam. No charge is made by the Vestry for disinfecting. Infected articles are not burned. Only where absolutely necessary is the wall-paper removed. During 1893 1,085 rooms and nearly 31,000 articles, weighing 64 tons 3 cwt., were disinfected. One inspector and a labourer (who are also engaged on other work) are disinfectors. The inspector receives £100 per annum and the labourer 30s. per week. Amounts paid to disinfecting contractor during years ending 25th March:—1892, £382 3s. 8d.; 1893, £790 1s. 6d.; 1894, £1,154 19s. 11d.

St. Saviour's, London. Population, 27,162.—Hot-air disinfection is used. There are no permanent disinfectors. Two men, who have other duties to perform, do, when required, the disinfecting work. About 170 to 180 dwellings are annually disinfected, with, on the average, twelve to fourteen articles per dwelling, and at a cost of £50 a year. Two hand trucks are used to convey clothes, &c. Some articles are burned. Notices to whitewash, &c., are served on owners.

Sunderland. Population, 136,000.—Steam disinfection in use. There are five persons employed—viz., an engineer, at 35s. a week; a fireman, at 35s.; two drivers of vans, at 26s.; and a disinfector, at 25s. Disinfection is not charged for. No whitewashing or cleansing is done by the Sanitary Authority. Owners of dwellings are sometimes called upon to remove wall-paper. Articles are occasionally burned in the furnace of the disinfector. In 1893, 1,297 dwellings and 2,672 articles were disinfected.

Swansea. Population, 90,350 (estimated).—Steam disinfector used. Two disinfectors receive 24s. 6d. and 22s. each per week. There are two vans. Wall-paper removed and cleansing performed by owners when requested. About 211 dwellings and 5,000 articles yearly disinfected without charge.

Tottenham. Population, 71,000.—There is "no steam or other apparatus for the scientific treatment of infected articles." Two persons are employed in fumigating rooms, and the owners are called upon to whitewash and cleanse them. About 600 dwellings are fumigated yearly.

Walsall. Population, 71,789.—Hot air is the disinfectant used. The apparatus is worked by the inspector of nuisances. Infected articles are sometimes burned in open spaces. Disinfection is free. One van is used. Room-disinfection is performed by the inspector of nuisances and his assistants. The whitewashing, &c., are usually done by occupier, and the wall-paper is removed and burnt. About 500 dwellings are annually disinfected. In 1893, 262 articles were disinfected. The nuisance inspector receives no extra pay for disinfection work.

West Bromwich. Population, 60,000.—Hot air is used as a disinfectant, and is considered by the Medical Officer of Health as of "no value." Infected articles are sometimes burned—of those disinfected there is no record. Two disinfectors receive each 23s. per week. Whitewashing, &c., performed by occupiers. Disinfection free.

Whitechapel, London. Population, 76,000.—Steam is the disinfecting agent, but infected articles are sometimes cremated. No charge is made for disinfection, which is carried out by four officers, who receive each 30s. a week. The cost of disinfecting staff is £364 a year. Two enclosed trucks convey infected and disinfected clothing, and the owners strip the walls, and sometimes the disinfectors wash them and the ceilings with solution of mercuric chloride. If the sanitary officers do not cleanse the infected rooms, they compel the owners or occupiers to do so. In 1893, 1,442 dwellings, and 22,271 articles were disinfected.

Wigan. Population, 57,000.—Steam and hot air are the disinfectants used. There are three disinfectors and two vans. One disinfector receives 28s. per week, another 24s., and the third is paid by the "job." Articles are sometimes cremated. Disinfection is free. In 1893, 463 dwellings and 3,794 articles were disinfected. Whitewashing, cleansing, &c., are not performed by the sanitary authority, but they cause the wall-paper frequently to be removed.

Willesden. Population, 70,000.—Steam disinfector in course of erection. There are two disinfectors who each receive 24s. a week. About 560 dwellings annually disinfected. There is no record of infected articles. There are no facilities for burning the latter. No vans are kept for conveyance of infected articles. No whitewashing or cleansing are done by the sanitary authority. When the patient is treated at home, the wall-paper of his apartment is subsequently removed. "Persons of means" are charged for disinfecting work done for them.

Wolverhampton. Population, 85,000.—Hot air is the disinfectant used. Infected articles are sometimes destroyed in a special furnace. There is no person whose sole duty is disinfection. The work is done by officers who have other duties to discharge. The Medical Officer of Health, Dr. Henry Malet, says:—"We are quite underhanded here, and should not be taken as a sample of how work should be done." About 400 dwellings and 14,000 articles are annually disinfected without charge. Infected dwellings are not whitewashed.

Woolwich. Population (1891), 40,848.—A steam disinfector is used. There is no permanent staff of disinfectors, the work being done by the nuisance inspector and his assistants. About 400 dwellings and 7,000 articles are annually disinfected. There are two vans. Whitewashing &c., are done by owners or occupiers.

Infected articles are occasionally destroyed in refuse destructor. Disinfection is free.

York. Population, 66,926.—Steam disinfection just come into use. There are two persons in charge of it, and there are two vans. For disinfecting rooms there is no permanent officer. As to disinfection of articles, the experience and records are confined to 1894. The number of dwellings disinfected is stated to be "very variable." When the occupiers of infected dwellings are too poor to whitewash them, the work is done by the sanitary authority. Disinfection has recently been made free. At the request only of their owners infected articles are burned. A laundry for infected linen has been set up, but its use is not yet sanctioned by the Corporation on account of cost.

The foregoing statistics clearly show that disinfection is still imperfectly performed in many English towns; both the staff and the appliances are insufficient. A noticeable feature is the general use of super-heated steam for disinfection of clothing and bedding. The machines used are almost invariably Washington Lyons' and Goddard and Massy's. A great many of the towns above referred to have only adopted steam disinfection since 1892.

It is remarkable that in many large towns the disinfecting staff appears to be altogether insufficient. Some towns, on the contrary—Manchester and Leeds, for example—have a large staff.

Only two laundries for washing and making up infected linen have been established in the above towns; one of them the general public cannot be induced to use, the other the general public will not be permitted to use.

It will be noticed that in many large towns there is only one van used; therefore, infected and disinfected articles must be conveyed in it. With two trifling exceptions, disinfection is not charged for.

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DISINFECTING DEPARTMENT OF THE CORPORATION OF DUBLIN.

The disinfection of clothing and bedding is performed in one of Washington Lyons' Steam Sterilisers, which cost £355, or, including cost of fitting-up, nearly £400. Most mattresses are destroyed by fire, and new ones given to their owners. Articles for disinfection are conveyed in a covered van to the disinfecting house, and after disinfection they are passed into a room, which has no connection with the disinfecting chamber, from which it is separated by the steam steriliser. There are two doors to this apparatus, one of which opens into the disinfecting chamber, and the other into the chamber for receiving the disinfected articles. These are removed through a door employed only for that purpose, and conveyed in a special van to their owners. The man who drives this van has no business whatever to do in the disinfecting chamber. His horse and van are kept in a separate building from the horses and vans employed by the disinfectors and for the removal of fever patients to hospital.

There are 3 ambulances for removal of the sick and 3 vans for conveyance of clothing, bedding, &c.; 5 horses used.

The disinfecting staff consists of a superintendent (salary £104 per annum), a chief disinfector (32s. 6d. per week), a keeper of the disinfecting house (22s. 6d. per week), an assistant disinfector (20s. per week), a man in the disinfected clothing, &c. room (20s. per week), and one man employed to bring the disinfected articles to their owners. There are four disinfectors, including drivers of vans, one of whom has 22s. 6d. per week, and the others £1 each. There is an inquiry officer, who ascertains what places are to be disinfected. The number of whitewashers and charwomen employed varies according to circumstances. They are paid by the Corporation.

There is a laundry in which infected linen is "made up" after disinfection. It is the only department in which a charge is made. The charges are the same as in public laundries.

Rooms are disinfected in the following manner:—The wall paper is always removed and the walls whitewashed, a little chloride of lime being in the whitewash. The rooms are disinfected by a mixture of sulphurous acid and steam. They are then thoroughly scoured out by the Corporation charwomen.

In 1893, the total cost of the department was £1,456 13s. 1d. The salaries and wages, including £20 for uniforms, amounted to £662. £132 was expended in compensating the owners of infected articles, which had been burned. Vehicles, horses, chemicals, gas, fuel, and rent, used up nearly all the balance. The disinfecting house is on the telephonic system.

There has never been a complaint made as to loss of property incurred whilst premises were in charge of the disinfectors.

THE LUCAN DAIRY PROCESS

For the Sterilization and Filtration of Milk.

THE paramount importance to everyone of avoiding contaminated milk, especially at times like this, when an epidemic is present in the city, is my reason for calling your attention to the above subject.

In 1893 I undertook to supply to the public

Pure Milk in Clean Vessels from Healthy Cows.

In order to fulfil these conditions I adopted elaborate precautions, of which I now give a brief *resumé*.

Cows.	Entirely grass fed in summer. Carefully housed, partly grass-fed, and regularly exercised in winter. Inspected at short intervals by experienced V.S.
Vessels.	Scalded thoroughly by super-heated steam. Lids cleansed by same method. Water used for washing certified by analysis to be safe.
Employees.	Regularly inspected by a Fellow of the Royal College of Surgeons. Suspended from duty on slightest complaint of illness.
Milk.	No foreign substance added. Samples frequently taken from our shops and carts by trustworthy inspectors, so as to check all possible adulteration.
Sterilization and Filtration.	(Patent Process.) Effected by passing the milk through a complicated series of filters, the efficiency of which is evidenced by the removal of all sediment from the milk. Then by subjecting the milk to the action of a sterilizer, it is rendered absolutely free from contamination.

R. G. NASH,

24 Parkgate-street, Dublin.

The fact that **Mr. Ernest Hart** has published reports of no less **than 74 epidemics of disease, afflicting 5,044 persons,** and caused by **pollution of milk,** ought to prove, even to the most sceptical, that in drinking carelessly-collected unsterilized milk they run a very serious risk.—*See Brit. Med. Jour., Sept., 1894.*

THE REPORT OF THE EMINENT BACTERIOLOGIST

Dr. EDMOND J. M'WEENEY, M.A.,

Professor of Pathology, University Medical School, and Pathologist to the Mater Misericordiæ Hospital, Dublin.

"*To the Manager, Lucan Dairy.*

"I have frequently and carefully examined the process of sterilization by heat and filtration to which the milk of the LUCAN DAIRY is subjected under Nash's patent process; and I have personally collected many samples of the milk, and made a bacteriological examination of them. The process used **is perfectly harmless,** no foreign substance is added, and the **nutritive value of the milk is not in the slightest degree impaired,** while the objectionable sediment, which exists to a greater or lesser degree in all milk, is altogether eliminated. The keeping properties of the milk are greatly increased by the process of filtering and sterilization. Coupled as it is with the periodic medical inspection of your employees, and the carefully enforced veterinary examination of your dairy cattle, **I consider that your system of dairy supply could hardly be improved upon in point of efficiency and safety.**

"EDMOND J. M'WEENEY, M.D., &c.

"*27th August*, 1894."

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.; F.R.C.P.I.; F. R. Met. Soc.; Diplomate in State Medicine and ex-Sch. Trin. Coll. Dubl.

Vital Statistics

For four Weeks ending Saturday, November 3, 1894.

The deaths registered in each of the four weeks in the sixteen principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns	Weeks ending				Towns	Weeks ending			
	Oct. 13.	Oct. 20.	Oct. 27.	Nov. 3.		Oct. 13.	Oct. 20.	Oct. 27.	Nov. 3.
Armagh -	21·0	35·1	14·0	21·0	Limerick -	25·3	16·8	11·2	29·5
Belfast -	22·9	21·3	19·0	20·0	Lisburn -	25·7	29·8	25·7	38·3
Cork -	20·8	20·8	15·9	28·4	Londonderry	25·1	28·3	18·8	17·3
Drogheda	17·6	0·0	13·2	17·6	Lurgan -	18·2	18·2	18·2	36·5
Dublin -	20·4	17·2	21·6	22·7	Newry -	4·0	12·1	16·1	20·1
Dundalk -	16·8	12·6	12·6	12·6	Sligo -	91·4	116·7[a]	40·6	50·8
Galway -	56·7	30·2	18·9	34·0	Waterford -	7·5	22·5	20·0	15·0
Kilkenny	33·0	28·3	14·2	18·9	Wexford -	4·5	13·5	4·5	22·6

In the week ending Saturday, October 13, 1894, the mortality in thirty-three large English towns, including London (in which the rate was 15·5), was equal to an average annual death-rate of 16·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 17·6 per 1,000. In Glasgow the rate was 20·4, and in Edinburgh it was 17·1.

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[a] Of the 21 deaths from all causes registered in Sligo No. 2 District, in the week ending October 20, only 3 occurred during the month of October.

The average annual death-rate represented by the deaths registered during the week in the sixteen principal town districts of Ireland was 22·3 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in eight of the districts to 7·6 in Galway—the 15 deaths from all causes registered in that district comprising 1 from measles and 1 from diarrhœa. Among the 118 deaths from all causes registered in Belfast are 2 from measles, 1 from scarlatina, 1 from diphtheria, 6 from enteric fever, and 8 from diarrhœa.

In the Dublin Registration District the registered births amounted to 166—80 boys and 86 girls; and the registered deaths to 144—82 males and 62 females.

The deaths, which are 15 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 21·5 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the district, the rate was 20·4 per 1,000. During the first forty-one weeks of the current year the death-rate averaged 25·1, and was 2·2 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 21, being 4 under the average for the corresponding week of the last ten years, and 1 under the number for the previous week. The 21 deaths comprise 2 from small-pox, 2 from whooping-cough, 1 from diphtheria, 7 from enteric fever, 3 (all of which occurred in the Richmond Lunatic Asylum) from beri-beri, 3 from diarrhœa, and 1 from erysipelas. The deaths from small-pox were those of a woman aged 22 years and a boy 6 years old, both of whom had been vaccinated.

Eight cases of small-pox were admitted to hospital, being equal to the admissions for the preceding week, but 11 under the number in the week ended September 29. Six small-pox patients were discharged, 2 died, and 62 remained under treatment on Saturday, being equal to the number in hospital at the close of the preceding week.

The number of cases of enteric fever admitted to hospital was 14, being 4 under the admissions for the preceding week, and 8 under the number in the week ended September 29. Fifteen patients were discharged, 1 patient died, and 95 remained under treatment on Saturday, being 2 under the number in hospital on that day week.

The hospital admissions for the week included, also, 11 cases of scarlatina, being 1 over the number of cases of that disease admitted during the preceding week: 11 patients were discharged, and 66 remained under treatment on Saturday, being equal to the number in hospital at the close of the preceding week.

Deaths from diseases of the respiratory system, which had risen from 20, for the week ended September 29, to 25 for the following week, fell to 15, or 10 under the average for the corresponding week of the last ten years. The 15 deaths comprise 9 from bronchitis and 5 from pneumonia or inflammation of the lungs.

In the week ending Saturday, October 20, the mortality in thirty-three large English towns, including London (in which the rate was 15·9), was equal to an average annual death-rate of 17·0 per 1,000 persons living. The average rate for eight principal towns of Scotland was 17·5 per 1,000. In Glasgow the rate was 18·4, and in Edinburgh it was 19·6.

The average annual death-rate in the sixteen principal town districts of Ireland was 20·6 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·1 per 1,000, the rates varying from 0·0 in eight of the districts to 17·0 per 1,000 in Lisburn, the 7 deaths from all causes registered in that district comprising 4 from measles. Among the 110 deaths from all causes registered in Belfast are 1 from measles, 1 from whooping-cough, 1 from enteric fever, and 7 from diarrhœa. The 12 deaths in Limerick comprise 1 from scarlatina and 2 from whooping-cough; and the 4 deaths in Lurgan comprise 2 from measles.

In the Dublin Registration District the registered births amounted to 184—93 boys and 91 girls; and the registered deaths to 121—64 males and 57 females.

The deaths, which are 39 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 18·0 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 17·2 per 1,000. During the first forty-two weeks of the current year the death-rate averaged 24·9, and was 2·4 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 18, being 5 below the average for the corresponding week of the last ten years, and 3 under the number for the previous week The 18 deaths comprise 2 from small-pox, 1 from scarlet fever (scarlatina), 4 from enteric fever, 1 (in the Richmond District Lunatic Asylum) from beri-beri, and 9 from diarrhœa. The deaths from small-pox are those of a man aged 42 years (vaccinated), and a male infant, one month old, "vaccinated too late: did not take."

Twenty-eight cases of small-pox were admitted to hospital, against 8 admissions in each of the two weeks preceding and 19 in the week ended

September 29. Three small-pox patients were discharged, 2 died, and 85 cases remained under treatment on Saturday, being 23 over the number in hospital on Saturday, October 13.

The weekly number of cases of enteric fever admitted to hospital has gradually decreased from 22 during the week ended September 29 to 11, the number for this week: 11 patients were discharged, 3 died, and 92 remained under treatment on Saturday, being 3 under the number in hospital at the close of the preceding week.

The other admissions to hospital included 8 cases of scarlatina, being 3 under the number of cases of that disease admitted during the preceding week: 12 patients were discharged, and 62 remained under treatment on Saturday, being 4 under the number in hospital on Saturday, October 13.

The number of deaths from diseases of the respiratory system registered was 19, being 4 over the low number for the preceding week, but 7 under the average for the 42nd week of the last ten years. The 19 deaths consist of 16 from bronchitis and 3 from pneumonia or inflammation of the lungs.

In the week ending Saturday, October 27, the mortality in thirty-three large English towns, including London (in which the rate was 17·8), was equal to an average annual death-rate of 18·5 per 1,000 persons living. The average rate for eight principal towns of Scotland was 18·5 per 1,000. In Glasgow the rate was 18·5, and in Edinburgh it was 18·1.

The average annual death-rate represented by the deaths registered in the sixteen principal town districts of Ireland was 19·3 per 1,000 of the population.

The deaths from the principal zymotic diseases in the sixteen districts were equal to an annual rate of 2·6 per 1,000, the rates varying from 0·0 in seven of the districts to 17·0 in Lisburn—the 6 deaths from all causes registered in that district comprising 4 more from measles. Among the 98 deaths from all causes registered in Belfast are 2 from measles, 1 from scarlatina, 4 from whooping-cough, and 9 from diarrhœa. The 12 deaths in Londonderry comprise 1 from enteric fever and 2 from diarrhœa.

In the Dublin Registration District the registered births amounted to 154—85 boys and 69 girls; and the registered deaths to 150—71 males and 79 females.

The deaths, which are 15 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 22·4 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 21·6 per 1,000. During the first forty-three weeks of the current year the death-rate averaged 24·9, and was 2·3 under the mean rate in the corresponding period of the ten years 1884–1893.

The number of deaths from zymotic diseases registered was 21, being

3 over the number for the preceding week, but 3 under the average for the 43rd week of the last ten years. The 21 deaths comprise 4 from small-pox, 1 from whooping-cough, 1 from diphtheria, 3 from enteric fever, and 7 from diarrhœa. The deaths from small-pox are those of two adults and of a girl aged 11 years, all of whom had been vaccinated, and of an infant one month old, "vaccinated too late."

The number of cases of small-pox admitted to hospital was 15, being 13 under the admissions for the preceding week: 17 small-pox patients were discharged, 4 died, and 79 remained under treatment on Saturday, being 6 under the number in hospital at the close of the preceding week.

Eleven cases of enteric fever were admitted to hospital, being equal to the admissions for the preceding week: 16 patients were discharged, 1 died, and 86 remained under treatment on Saturday, being 6 unde the number in hospital on Saturday, October 20.

The hospital admissions for the week included, also, 15 cases of scarlatina, against 8 for the preceding week and 11 for the week ended October 13. Seventeen patients were discharged, and 60 remained under treatment on Saturday, being 2 under the number in hospital at the close of the preceding week.

Only 18 deaths from diseases of the respiratory system were registered, being 12 below the average for the corresponding week of the last ten years, and 1 under the number for the week ended October 20. They consist of 9 from bronchitis, 8 from pneumonia or inflammation of the lungs, and 1 from croup.

In the week ending Saturday, November 3, the mortality in thirty-three large English towns, including London (in which the rate was 16·4), was equal to an average annual death-rate of 17·3 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·2 per 1,000. In Glasgow the rate was 22·1, and in Edinburgh it was 23·4.

The average annual death-rate in the sixteen principal town districts of Ireland was 22·8 per 1,000 of the population.

The deaths from the principal zymotic diseases registered in the sixteen districts were equal to an annual rate of 2·3 per 1,000, the rates varying from 0·0 in seven of the districts to 9·4 in Kilkenny—the 4 deaths from all causes registered in that district comprising 1 from enteric fever and 1 from diarrhœa. Among the 103 deaths from all causes registered in Belfast are 2 from measles, 1 each from scarlatina, whooping-cough, diphtheria, and simple-continued fever, 7 from enteric fever, and 4 from diarrhœa. Four of the 41 deaths in Cork were from scarlatina. Among the 21 deaths in Limerick are 1 from scarlatina and 1 from whooping-cough. The 9 deaths in Lisburn comprise 2 more from measles. The 8 deaths in Lurgan comprise 1 from measles and 1 from scarlatina.

In the Dublin Registration District the registered births amounted to 184—99 boys and 85 girls; and the registered deaths to 160—80 males and 80 females.

The deaths, which are 21 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 23·9 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the district, the rate was 22·7 per 1,000. During the first forty-four weeks of the current year the death-rate averaged 24·9, and was 2·3 under the mean rate in the corresponding period of the ten years 1884–1893.

Only 18 deaths from zymotic diseases were registered, being 10 below the average for the corresponding week of the last ten years, and 3 under the number for the week ended October 27. They comprise 1 from small-pox, 1 from scarlet fever (scarlatina), 1 from influenza, 1 from whooping-cough, 1 from cerebro-spinal meningitis, 3 from enteric fever, 4 (all in the Richmond District Lunatic Asylum) from beri-beri, and 5 from diarrhœa. The death from small-pox is that of a man aged 54 years who had not been vaccinated; "said to have had small-pox in infancy."

Twenty-eight cases of small-pox were admitted to hospital, being 13 over the admissions in the preceding week and equal to the number in the week ended October 20. Twenty-three small-pox patients were discharged, 1 died, and 83 remained under treatment on Saturday, being 4 over the number in hospital at the close of the preceding week.

The number of cases of enteric fever admitted to hospital was 19, being 8 in excess of the number for each of the two weeks preceding: 28 patients were discharged, 1 died, and 76 remained under treatment on Saturday, being 10 under the number in hospital on Saturday, October 27.

The hospital admissions for the week included, also, 15 cases of scarlatina, being equal to the number of cases of that disease admitted during the preceding week: 9 scarlatina patients were discharged, and 66 remained under treatment on Saturday, being 6 over the number in hospital on the previous Saturday.

The number of deaths from diseases of the respiratory system registered was 29, being 11 over the low number in the preceding week, but 3 under the average in the 44th week of the last ten years. The 29 deaths comprise 14 from bronchitis and 13 from pneumonia or inflammation of the lungs.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20′ *N., Long.* 6° 15′ *W., for the Month of October,* 1894.

Mean Height of Barometer,	29·881 inches.
Maximal Height of Barometer (on 1st, at 9 a.m.),	30·454 „
Minimal Height of Barometer (on 24th, at 4 p.m.),	28·591 „
Mean Dry-bulb Temperature,	49·2°.
Mean Wet-bulb Temperature,	47·6°.
Mean Dew-point Temperature,	46·0°.
Mean Elastic Force (Tension) of Aqueous Vapour,	·315 inch.
Mean Humidity,	89·2 per cent.
Highest Temperature in Shade (on 31st),	62·8°.
Lowest Temperature in Shade (on 22nd),	36·0°.
Lowest Temperature on Grass (Radiation) (on 22nd),	28·5°.
Mean Amount of Cloud,	64·5 per cent.
Rainfall (on 20 days),	3·967 inches.
Greatest Daily Rainfall (on 23rd),	1·042 inches.
General Directions of Wind,	E., S.E., W.

Remarks.

The first half of the month was quiet, fine, and, for the most part, dry. Some low night temperatures were recorded from time to time at inland stations. Until the 18th very little rain fell—only ·231 inch in Dublin; but from that day onward to the close large quantities of rain were measured almost daily, the precipitation, owing to the prevalence of southeasterly to southwesterly winds, being greatest at the coast stations—Killiney, 6·31 inches; Greystones, 6·105 inches: and least at stations under the lee of the Dublin Mountains—Dublin City, 3·736 inches; Ordnance Survey Office, Phœnix Park, 3·355 inches. The rainfall for the month was 4·01 inches at Balbriggan, 3·960 at Glasnevin Royal Botanic Gardens, and 5·70 inches at Carrickmines. On the 19th and 20th a heavy fall of snow occurred on the Dublin Mountains. On the evening of the latter day a sharp thunderstorm passed over Dublin City and County from the eastward.

In Dublin the arithmetical mean temperature (49·7°) was exactly the average (49·7°); the mean dry bulb readings at 9 a.m. and 9 p.m. were 49·2°. In the twenty-nine years ending with 1893, October was coldest in 1892 (M. T. = 44·8°), in 1880 (M. T. = 45·4°), and in 1885 (M. T. = 45·5), and warmest in 1876 (M. T. = 53·1°). In 1886, the M. T. was as high as 52·0°; in 1879 (the "cold year") it was 49·7°; in 1887, it was as low as 47·3°; in 1888, it was 49·1°; in 1889, it was only 48·1°; in 1890 it was 51·7°; in 1891, 49·5°; and in 1893, 50·0°. October, 1892, beat the record for coldness.

The mean height of the barometer was 29·881 inches, or 0·041 inch above the corrected average value for October—namely, 29·840 inches. The mercury rose to 30·454 inches at 9 a.m. of the 1st, and fell to 28·591 inches at 4 p.m. of the 24th. The observed range of atmospheric pressure was, therefore, as much as 1·863 inches—that is, a little less than an inch and nine-tenths.

The mean temperature deduced from daily readings of the dry bulb thermometer at 9 a.m. and 9 p.m. was 49·2°, or 3·7° below the value for September. The arithmetical mean of the maximal and minimal readings was 49·7°, compared with a twenty-five years' average of 49·7°. Using the formula, *Mean Temp.* = *Min.* + (*max.* — *min.* × ·485), the value was 49·5°, or exactly equal to the average mean temperature for October, calculated in the same way, in the twenty-five years, 1865–89, inclusive (49·5°). On the 31st the thermometer in the screen rose to 62·8°—wind, S.S.W.; on the 22nd the temperature fell to 36·0°—wind, E. The minimum on the grass was 28·5°, also on the 22nd. On no night did the thermometer sink to or below 32° in the screen, but on four nights frost occurred on the grass.

The rainfall was 3·967 inches, distributed over 20 days—the rainfall and the rainy days were decidedly above the average. The average rainfall for October in the twenty-five years, 1865–89 inclusive, was 3·166 inches, and the average number of rainy days was 17·6. In 1880 the rainfall in October was very large—7·358 inches on 15 days. In 1875, also, 7·049 inches fell on 26 days. On the other hand, in 1890, only ·639 inch fell on but 11 days; in 1884 only ·834 inch on but 14 days; and in 1868 only ·856 inch on 15 days. In 1888, the rainfall was 1·227 inches on 16 days; in 1889, 4·853 inches fell on 22 days. In 1891, 3·590 inches fell on 13 days; in 1892, 2·535 inches on 17 days; and in 1893, 1·033 inches on 10 days. From these figures it will be seen that October, 1890, proved the driest on record for more than a quarter of a century at least.

There was a thunderstorm on the evening of the 20th. High winds were noted on 9 days, but attained the force of a gale on only one occasion—the 24th. The atmosphere was more or less foggy in Dublin on the 2nd, 3rd. 4th, 8th, 9th, 10th, 11th, 12th, and 27th. Hail fell on the 19th and 20th; sleet on the 20th.

Another period of fine, quiet, autumnal weather in Ireland has to be chronicled at the beginning of the month. In the eastern half of Great Britain conditions were less favourable, and slight rain fell upon most days. The weather was first cool and hazy or foggy, then brilliant. On Monday, the 1st, the barometer fell both on the Continent and slightly in Scotland and Ireland, while it rose over England. The weather remained fine and more or less bright until Thursday, when an area of low pressure was found over the south of Germany, whence it spread north-westwards towards England. The depression caused freshening easterly winds, cloudy skies, and finally slight rains in the N.E. and S.E. of England; while heavier rains were reported from the Continental Stations. On the east coast of Ireland also the sky became overcast and rain threatened at times—in Dublin, however, only a few drops of rain were observed on Friday and a very slight drizzle on Saturday afternoon. In Dublin, the barometer fell gradually from 30·454 inches at 9 a.m. of Monday (wind, S.E.) to 29·998 inches at 9 p.m. of Saturday (wind, E.N.E.) On Tuesday the screened thermometers fell to 40·2°. On Monday they rose to 58·8°. There was no measurable rainfall until the early morning of Sunday, October 7th, when ·011 inch fell. The prevailing winds were S.E., E., and N.E.

Changeable, but warmer, damper and more foggy weather prevailed during the week ended Saturday, the 13th. Atmospheric pressure was still high, but not so high as in the previous week. The central areas of highest barometer lay more to the eastward than before, and thus there was a growing tendency to the substitution of southerly and westerly winds for the easterly and northerly breezes of previous weeks. On Monday and Tuesday the first dense fog of the season settled down over London. The mornings of these days as well as of Wednesday were damp and foggy in Dublin also. On the afternoons of Monday, Tuesday, and Thursday rain fell in close showers. Until Tuesday the nights were cool, but then a rapid advance in temperature took place, which was even more marked by night than by day. The minimum in the screen did not fall below 55·1° on the nights of Tuesday and Wednesday, whereas it had been 40·8° on Sunday night. On Wednesday the wind almost "boxed the compass" in Dublin, veering from W. to N., and then through N.E. and E. to S.E. Towards the close of the week, depressions began to pass across Northern Europe from the north-westward and a return to the northerly weather-type was indicated. In Dublin the mean height of the barometer was 30·125 inches—the lowest reading was 29·997 inches at 9 p.m. of Tuesday (wind, S.S.W.); the highest reading was 30·252 inches at 9 a.m. of Friday (wind, calm). The corrected mean temperature was 54·1°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 53·6°. On Monday the screened thermometers fell to 40·8°; on Friday they rose to 62·7°—the highest reading recorded in Dublin since September 10th. The rainfall amounted to ·210 inch, on five days, ·101 inch being measured on Tuesday. The wind was variable.

Cold throughout, the weather of the week ended Saturday, the 20th, was at first fine and dry, but afterwards became dull, damp, and rainy. On Friday and early on Saturday morning large quantities of cold rain, hail, and sleet fell, so that on Saturday the Dublin and Wicklow mountains were snow-capped for the first time this season. On Saturday evening much lightning was seen to the eastward of Dublin, and a thunderstorm with heavy rain passed over the city between 7 and 8 30 p.m. Until Wednesday an anti-cyclone was found over Scotland and Ireland, while a primary depression with its usual secondaries was travelling slowly southwards from the south of Scandinavia to Germany. Polar winds were prevalent all over Western Europe, and the weather was correspondingly cold. At 8 a.m. of Monday the thermometer read 30° at Parsonstown, whereas it was 51° in the Scilly Islands and Jersey. On Wednesday a rather deep depression moved southwards down the Baltic from Lapland and the Gulf of Bothnia. Under its influence cold showers fell very generally along the eastern seaboard of Great Britain. Next day the distribution of pressure became very complex—the barometer began to rise briskly in the extreme north, but fell over Spain, France, and the United Kingdom. The result was the setting in of easterly winds and rain or sleet and hail, a rapid fall of temperature in the north of Europe—to 9° F. at Haparanda at 8 a.m. of Friday—and an equally rapid rise in France and Germany. In Dublin the mean height of the barometer was 30·011 inches, pressure ranging from 30·346 inches at 9 a.m. of Monday (wind, N.) to 29·528 inches at 2 30 p.m. of Saturday (wind, E.) The corrected mean temperature was 45·5°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 44·5°. On Sunday the screened thermometers rose to 56·6°, on Friday they fell to 37·9°. The rainfall was 1·238 inches on the last four days, ·729 inch being referred to Friday. This was the largest measurement of rain recorded in Dublin since August 25th, and was much in excess of the total rainfall for the month of September (·442 inch). The prevailing winds were N.E. and N. Hail fell on Friday, sleet on Saturday, on which day also there was a sharp thunderstorm.

Weather of a cyclonic type was experienced in all parts of western Europe throughout the week ended Saturday, the 27th. Between Tuesday and Friday a barometric depression of the first importance travelled north-eastwards from the S. W. of Ireland across this country, Scotland and the North Sea, to Sweden. In its passage, gales from various quarters prevailed, rain fell in torrents, and temperature became much higher than it had ruled for several weeks. On Sunday morning, a depression, which had caused thunderstorms during the previous day and night in Ireland, the S.W. of England and throughout France, was found with its centre over the Wash. Very fine, bright weather prevailed in Ireland on this day and on Monday. The evening of the last-named day was frosty at first, but temperature rose quickly after 9 p.m. in Dublin. In central England, however, sharp frost occurred, lasting until Tuesday morning. Even there the thermometer afterwards rose so quickly that the reading (53°) at 8 a.m. of Wednesday at Loughborough was 27° above that recorded at 8 a.m. of Tuesday (26°). This violent disturbance of temperature accompanied, or was caused by, the very deep atmospheric depression already mentioned, in which the barometer fell to 28·59 inches in Dublin. Scarcely had this system travelled away when another less deep depression advanced from S.W., causing a renewed rainfall and gloomy weather. Lightning was seen in the South of England nightly from Sunday to Friday. On the last day of the week the wind fell calm. In Dublin the mean height of the barometer was only 29·353 inches, the extreme readings being—highest, 29·847 inches at 9 p.m. of Monday (wind, E.); lowest, 28·591 inches at 4 p.m. of Wednesday (wind calm). The corrected mean temperature was 48·3°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 48·0°. On Wednesday the screened thermometers rose to 57·7°, on Monday they fell to 36·0°. The prevailing winds were—first, E.; then, W. Rain fell on six days to the total amount of 2·011 inches, 1·042 inches being measured on Tuesday.

Atmospheric pressure remained in a most unstable condition throughout the last four days, and copious rainfalls, strong, squally southerly winds, high but unsteady temperatures, and on Sunday and Monday electric disturbances made up the weather of the period. Most of the depressions observed passed northwards or north-eastwards across the Atlantic, skirting the western coasts of Ireland and Scotland. On Tuesday morning, however, three primary areas of low pressure existed—over Denmark, the North of Scotland, and off the S.W. of Ireland respectively. Connected with these disturbances thunderstorms had prevailed in Wales and the North of England, and in the course of Tuesday torrents of rain fell in the southern half of the British Isles, in Belgium and the N.E. of France. The measurement at Brixton, in the S. of London, was 1·44 inches. On the same day (Tuesday) there was an extraordinary difference in temperature between Haparanda on the Gulf of Bothnia, where at 8 a.m. the thermometer read —7° Fahr., and Berlin and Valentia Island (Kerry), where the reading at the same time was 51°, or 58° higher. The barometer oscillated between 29·363 inches at 9 a.m. of Monday (wind, S.W.) and 29·743 inches at 9 p.m. of Tuesday (wind, S.E.). The screened thermometers rose to 62·8° on Wednesday, having fallen to 39·1 on Tuesday.

The rainfall in Dublin during the ten months ending October 31st amounted to 26·268 inches on 176 days, compared with 12·366 inches on 123 days during the same period in 1887, 19·219 inches on 147 days in 1888, 24·789 inches on 169 days in 1889, 21·494 inches on 162 days in 1890, 21·610 inches on 148 days in 1891, 22·445 inches on 167 days in 1892, 16·141 inches on 138 days in 1893, and a twenty-five years' average of 22·840 inches on 160·4 days.

At Knockdolian, Greystones, Co. Wicklow, the rainfall in October amounted to 6·325 inches on 17 days. Of this quantity 2·300 inches fell on the 23rd, and 1·060 inches on the 19th. The rainfall at Greystones in October, 1889, was no less than 6·935 inches on 22 days, or more than 11 times as great as the fall in October, 1890, when only ·600 inch fell on 13 days. In 1891, 5·122 inches fell on 14 days; in 1892, 3·340 inches on 15 days, and in 1893, ·710 inch on 15 days. From January 1st, 1894, up to October 31st, rain fell at Knockdolian on 154 days to the total amount of 32·221 inches. In 1892, the rainfall of the corresponding ten months was 27·223 inches on 140 days; and in 1893, 17·801 inches on 133 days.

At Cloneevin, Killiney, Co. Dublin, the rainfall in October was 6·460 inches on 17 days, compared with 3·040 inches on 17 days in 1892, ·710 inch on 14 days in 1893, and a nine years' average of 2·924 inches on 15·9 days. The total fall during the first 16 days of October was only ·13 inch. From the 17th to the 31st rain was recorded daily, except on the 22nd. On the 23rd, 1·91 inches fell—the heaviest downpour recorded in 10 years. Since January 1, 1894, 29·38 inches of rain have fallen at this station on 167 days.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1895, provided that an Essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in Medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1895. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within it the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1894 has been awarded to Dr. G. E. de Schweinitz, of Philadelphia, for his Essay entitled "Toxic Amblyopias."—Charles W. Dulles, *Secretary*.

BRITISH GYNÆCOLOGICAL JOURNAL.

We notice with much satisfaction the great improvement which has taken place in the publication of this journal, beginning with the May number. Instead of the monthly publication that we have been accustomed to, with its thick, rough, badly-finished paper and uncut leaves, we now have before us a journal excellent in every respect, and one, we venture to say, that will compare favourably with any other of its kind in the language.

PERISCOPE.

BROWN-SÉQUARD'S METHOD.

As we write, a large octavo volume on this subject, of 600 pages, illustrated by some 60 engravings and plates, is being published in Paris. It is from the pen of Dr. M. Bra. The work is entitled *Traité de la thérapeutique des tissues.* It contains everything which has been published on the subject at home and abroad. The author has conceived the happy idea of collecting all the scattered facts bearing upon the matter from innumerable publications and of weaving them into one homogeneous whole. He devotes himself to a minute analysis of the physiological points upon which depend the various therapeutic applications which the method embraces. Particular pains have been spent on the bibliography of the question; and, in a word, the work is thoroughly comprehensive, including as it does a full account of the mode of preparation of the organic extracts, the physiological experiments upon which the method is based, and its therapeutic applications. The publisher is J. Rothschild, 13 Rue des Saints-Pères, Paris, and the price of the work is about ten shillings.

COLLECTION OF ANATOMICAL MATERIAL.

At the last meeting of the Association of American Anatomists, J. Ewing Mears, M.D., Thomas Dwight, M.D., and Joseph D. Bryant, M.D., were appointed a Committee to "consider the question of the collection and preservation of Anatomical Material, and to report, at the next meeting, what in their opinion are the best means of accomplishing these objects." In order to make the work of the Committee as comprehensive as possible, and to obtain information which will be of service in arriving at definite conclusions as to the best methods of accomplishing the purposes indicated in the resolution, the Committee has deemed it desirable to send to the Teachers of Anatomy, not only in America, but abroad, a circular letter, with the questions appended, and to request answers thereto, as fully as they can be made—1. Is Anatomical material obtained in accordance with a legal enactment, wholly or in part? 2. If there is an Anatomical law in your Country or State, please send a copy of it to the chairman of this Committee, Dr. J. Ewing Mears, 1429 Walnut-street, Philadelphia, Pennsylvania. Please state whether the law is satisfactory, whether it is readily obeyed by those upon whom duties are imposed by it, and mention any improvements you would suggest, as to its requirements. 3. Is the material received in good condition? 4. What disposal is ultimately made of the remains? 5. Please state what means are employed to preserve

Anatomical material for the purposes of dissection or operative surgery. If injections of preservative fluids are used, state their composition and the methods of use, at what point injections are made, whether at the heart or in the large arteries, and their effect in accomplishing the preservation, with any changes in the colour or character of the tissues. What length of time can material be used in dissection by the methods employed by you? If preservation by means of "cold storage" is employed, please state the cost of the machinery which it was neccessary to construct for this purpose, and what means are taken to prevent decomposition after the subject is placed upon the table for dissection. 6. Please state the cost, by the method employed by you, for each subject—(*a*) for receiving it—(*b*) for injecting and preserving it. 7. Do you obtain an adequate supply of material for the purposes of Anatomical instruction? How many students are assigned to each subject, and what is the method of allotment? 8. Please give any information which you may deem of importance. As the Report will be general in character, the name of the informant or institution will not be mentioned by the Committee unless requested. Your compliance with the request of the Committee, *at an early date*, will be fully appreciated as rendering assistance to it in accomplishing its work, and it desires to thank you for the same in advance.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Aluminium Pocket Calendar.

MR. JOHN MORGAN RICHARDS, the proprietor of Lactopeptine, has designed and patented this very ingenious and useful Calendar for 1895. It consists of an aluminium disc, one inch and a half in diameter, between radii of which are included the names of the respective months, the initial letters of each day of the week, and the dates of each day of the month. The Calendar is the same size as a four-shilling piece, but phenomenally lighter in weight than that coin, and therefore can be easily carried in the waistcoat pocket. On the reverse the disc bears the legend "Lactopeptine," with a quotation from the *British Medical Journal* recommending this well-known preparation. The necessary economy of space and condensation in the Calendar leads to certain anomalies. Thus February and March are each credited with 30 days; September and April each with 31 days. These startling entries can, however, be easily discounted, and it should be mentioned that the first day of the following months is in each case correctly given.

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